

CASSELL'S
HOUSEHOLD GUIDE

TO

EVERY DEPARTMENT OF PRACTICAL LIFE:

BEING

A Complete Encyclopædia

OF

DOMESTIC AND SOCIAL ECONOMY.

NEW AND REVISED EDITION.

VOL. IV.

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CASSELL'S HOUSEHOLD GUIDE.

CAGE BIRDS.—IX.

THE TITLARK.

THE name given by Bechstein to this bird is *Anthus arboreus*; *Alauda trivialis* by Mr. H. G. Adams. The *Anthus pratensis* and *Anthus trivialis* are the names given to the meadow pipit by some writers; *Alauda pratensis* by Mr. H. G. Adams.

Before describing what is usually called by dealers, fanciers, and at ornithological exhibitions the titlark, we think it perfectly necessary to explain that the meadow pipit—which is a constant resident in this country, and which is worthless as a song-bird—has been mistaken for that migratory bird, which sings so sweetly. The heel of the meadow pipit resembles the skylark's; the titlark's short and curved.

Some authorities have described the song-bird as the tree titlark, and the meadow pipit as the titlark; others have designated them the tree and meadow pipits. The plumage of both birds is brown, and they greatly resemble each other.

The titlarks arrive in this country early in April—the males several days in advance of the females—and frequent the wooded districts. They are seldom found in the open unenclosed country. About thirty years ago they were often caught around London. In the south of England they are said to be plentiful, except in Cornwall; not very numerous in North and South Wales, but abundant in the cultivated and sheltered parts of Derbyshire. They are likewise found in Durham and Northumberland. Doubts are entertained whether they extend their range to Ireland.

The length of this bird is about five inches and a half. The male is rather larger than the female, but the sexes are nearly alike in plumage. The titlark's nest is placed on the ground, in woods and plantations, sometimes sheltered by tufts of herbage or under a low bush. It is formed of moss, fibrous roots, and dried grass, lined with fine bent, and a few hairs. The eggs are from four to five in number, and are greyish white, clouded and spotted with purple, brown, or red. The young birds will thrive if fed and treated similarly to nestling skylarks, on

hard-boiled egg and scraped lean beef, mixed with water, and reduced to a paste, as given to nightingales, &c. When older they can be fed on German paste, breadcrumbs, hempseed, &c. Keep their cages free from vermin, and supply them each day with clean water and fresh gravel. Young titlarks are seldom sold in London; most of those obtained of dealers are caught in April or May, soon after they arrive in this country.

The titlark, when at liberty, will commence singing while perched on the top of a bush, or on an upper branch of a tree, from which it will ascend on quivering wing about twice the height of the tree, then, stretching out its wings and expanding its tail, will descend slowly, by a half-circle, to the same branch from which it started, singing the whole time, and will perform the same evolution several times in a comparatively short time,



THE TITLARK.

if not disturbed, after a warm shower in the early part of the summer.

The titlarks were formerly valued for their song, and those who obtained young linnets, canaries, and skylarks, kept one or more of these birds to improve their melody. The acquired song of young birds then most valued was "weeting, chowing, fearing, whisking, and rattling;" all these were pleasing changes of the titlark. Some of these birds do not sing above four or five months each year.

Titlarks, when caged, require a perch. In confinement they often moult twice a year, commencing their second moult about January or February. It is strange that no writer has noticed this singular peculiarity.

But few linnets or canaries sing so sweetly and have such a variety of changes as formerly, except some of the best German canaries; but their variations are very unlike those of the old English canary.

The form and plumage of the field pipit somewhat resembles that of the titlark; but it is rather longer. In confinement its food and its mode of treatment may be the same as the titlark's. It is not desirable to keep these birds; we have known them sold for one penny each by birdcatchers. Some persons recommend giving both the titlark and pipit meat, worms, and ants' eggs, which are not always easily obtained, and not required unless easily

obtained and the birds appear unwell, in which case it sometimes does them good.

There are several kinds of larks and pipits which are seldom seen in confinement or sold by dealers; viz., the shore lark, crested lark, short-toed lark, and colandra lark; also the field pipit and the rock pipit. Persons having these birds may feed and treat them in a similar manner to titlarks, woodlarks, and skylarks.

THE HOUSEHOLD MECHANIC.—XLVII.

PAPER-HANGING.

IN a former number of this journal, under the heading of "Principles of Good Taste in Household Decoration," the various patterns of wall paper were fully described. In this article we propose to give such instructions as may enable the household mechanic to hang or fix the paper upon the wall. We suppose that there are but few persons, who may have had some spare time upon their hands, who have not attempted this sort of work; and those who have tried and failed, or at best but partially succeeded, will, we doubt not, be most glad of such hints as will enable them to execute the work with ease and certainty of success.

The exceeding rapidity with which paper-hangings can now be produced, and their wonderful cheapness, have led to their adoption as a means of decorating walls, in preference to many other, and, we are bound to say, better, plans of effecting the same purpose. For instance, no one can doubt the superiority of the finely-wrought tapestry which was hung in former times over the walls of those houses the inmates of which could afford such expensive luxuries; but upon the other hand, the walls of the humblest cottage may now be rendered cleanly and comfortable in appearance, at the cost of a few shillings. Upon the whole, perhaps, the greatest benefit to the largest number is the safest principle; and the popular style of wall decoration certainly brings with it this recommendation—that it is within the reach of all.

At the outset, we must observe, that it is of the first importance, in a sanitary point of view, to remove all the old paper from the walls before re-covering them with a fresh and clean coating. To cover a dirty paper with a clean one, is not cleaning, properly so called; and, in bedrooms especially, the practice cannot be too severely condemned. The first proceeding will therefore be to thoroughly clear off every portion of the old paper. In many cases, this will not be a difficult matter; but, if the walls have been sized, and the old paper is thin and weak, it will often be necessary to soak it before it can be removed. The flat trowel described in our article on "Whitewashing" (page 12) will be found very useful for this purpose, and the whitewash brush should be used to soak the paper. Before the papering is commenced, every crack, crevice, and imperfection in the walls should be thoroughly stopped; and, if these are at all extensive, the stopping should be allowed at least twenty-four hours to dry, before the wall paper is applied.

English wall papers are supplied in lengths, called "pieces," of twelve yards; but, as the ends are frequently damaged, eleven yards is the average quantity which may be calculated upon for use. The width slightly varies with different makes; but about twenty or twenty-two inches is a fair average. French papers are much narrower; but as these are generally dearer, and more delicate than the English, we should scarcely suppose that an amateur would attempt to hang them, as a failure would involve a considerable waste of money. In order to roughly estimate the quantity of paper required, it will be well to count the number of widths already upon the walls, before the old paper is removed. If the height of the room is then measured, it will be easy to calculate

the number of yards required. Of course, allowance must be made for the waste which always occurs in matching the patterns, and it should be remembered that, as a rule, there is more waste when using a large pattern than is usual in a small one; and also that any little irregularity of hanging or matching will be much more perceptible.

Although the varieties of wall papers are well-nigh numberless, there are three prominent classes which had better be here mentioned. The first and most common are those in which the pattern is printed in colours upon either the bare paper itself, which forms the ground, or those in which a ground of colour is laid upon the surface to receive the pattern. Of these, the first will, of course, be the cheapest; and papers of this description may often be purchased at twopence or twopence halfpenny per twelve yards. Either of these papers will be suitable for bedrooms or kitchens; but they will rarely be adapted for those of a superior class, as they are mostly gaudy and common-looking. The next class above this is of a much better character, and is termed "satin paper," from the fact that certain portions of the design are smooth and glossy. Papers of this quality are generally far better in design than those previously mentioned, and are suitable for the drawing-room. They also possess this peculiarity—that from their hardness, and smoothness of surface, they may be easily cleansed from surface-stains or dust, which the more open-grained papers before-mentioned would hold and retain. The cost of paper of this quality varies from one shilling and sixpence to four or five shillings per twelve yards.

Flock papers are much richer and more durable, but they are mostly very expensive. In these a peculiar cloth-like surface is obtained in parts, by printing the pattern upon the paper with some adhesive material, which is afterwards dusted over with the substance (of a woolly character) known as "flock." When finished, the effect is that of a raised pattern of cloth upon a plain surface, and it presents a very rich and beautiful appearance. In a good flock paper, gold is frequently introduced, and sometimes the satin, flock, and gold are intermingled in the most charming manner. It need scarcely be said that such sumptuous paper as this is very expensive. A common variety, of an old pattern, may sometimes be bought at four to six shillings per twelve yards; but the best patterns and first-quality material will be worth more than this per yard. We should hesitate in advising the amateur to attempt to hang a paper of this description, until he has attained considerable skill and much experience. We have thought it necessary thus to inform the tyro of the cost and quality of the material which he will have to manipulate, and will now proceed to the practical details of paper-hanging.

It will be observed that there is on either side of wall papers a narrow slip of surface which has not received any impression of the pattern. Of course this must be removed, at least from one edge. In the case of a very good paper, not only should the joining edge be cut close up to the pattern, but also that which is to be partially overlapped by the fair edge. This edge, however, should not be cut quite up to the pattern, but about a quarter, or three-eighths of an inch left on, to receive the edge of the next length. For edging the paper, a long and sharp pair of scissors should be used, and considerable care taken to cut exactly up to the edge of the figure. The best plan will be to take the roll of paper, and, holding the upper part in one hand, allow a yard to run out upon a clean floor. About a yard may then be edged and rolled up, when a fresh portion may be proceeded with, and so on until it is all completed. When a sufficient quantity is thus prepared, a portion, of the required length, should be measured off, and laid upon the floor, or upon a board of sufficient width, the pattern side upwards.

From this length the others may be measured, to the number required; but, in thus measuring, it should be remembered that the pattern must be matched. Thus, if we suppose the design to consist of a gold or coloured star on a plain ground, the join will come through the centre of one row of such stars; and if these are, in cutting the lengths, placed exactly one upon the other, when hung the pattern will exactly coincide. In all probability, there will be a little waste in each length, and this should, or in fact must, be cut from the lower end—keeping the top cut to exactly the same distance down the pattern. It is advisable to cut in this manner as many lengths as may be required, reserving the remnants for those places in which shorter pieces will be sufficient.

The best material for hanging paper is ordinary flour paste. That most generally used by paper-hangers is made without boiling, by first mixing the flour with a little chilled water, and then pouring upon it boiling water, stirring it until it thickens. When cold, it will be ready for use. It is better and easier to use the paste rather thin—in fact, it should never be used when more solid than thick gruel. It is very seldom that any difficulty is found in making the paper adhere to the walls, but if it should arise, a few brushfuls of paste brushed over them will at once remove the defect.

Everything being thus prepared, several lengths of paper should be laid one on the other upon the floor or bench, allowing the fair edges to project over, so that the paste may not touch the figured surface. The back should then be smartly brushed over with paste, covering every part, but taking especial care not to soak the paper. The more quickly and dexterously this operation can be performed, the better will be the result, and no time should be lost in at once placing the wet paper upon the wall. The more common papers have less power of resisting water than those of good quality, and speedily become so rotten and weak that they will not support their own weight, while at the same time they expand so much that it is often difficult to match the patterns—in fact, some of the very common and cheap papers can only be hung when they are half dry, and one person should paste the back while the other is engaged in placing the previously pasted piece upon the wall. As it is difficult to manage a very long length of wet paper, the best plan is to fold it loosely back into about half its original length; and when the upper part is fixed to the wall, unfold the lower portion, and place that in its turn. The proper place to commence hanging is the left-hand corner of the room, working round to the right. Of course, great care must be taken to fix the first length perfectly upright, as, if this is not done, the whole of the paper will, in following it, be out of the perpendicular, and a most unpleasant effect will be produced. When the first length has been properly placed, the exact lines of the ceiling and skirting-board should be marked with the back of the scissors, and the paper gently drawn away from the wall, cut off to the line, and replaced. All air-blisters and wrinkles should be pressed out, and the whole smoothed down with a soft, long-haired brush. While the paper is wet, a very little will cause it to smear; and it is consequently of the first importance not to touch its surface more than is absolutely necessary.

The first length being properly placed, the others may be fixed in the same manner, until the whole of the longer lengths are in position; when the smaller portions, such as those over the windows and doors, may be filled in with the remnants before mentioned.

We may here observe, that as the tyro will probably experience some difficulty at first in manipulating long lengths of wet paper, he will be wise in selecting a room of moderate height in which to experiment; and (as we have before mentioned) the cheapest papers being the

most rotten when wet, we should advise him to select a moderately good one for his first attempt. Having once mastered the details and manipulation, he will soon gain skill, confidence, and dexterity, and be able to hang either good or bad papers quickly, and with ease.

Thus far we have written only of plain work, such as that used for the body of the room; but the effect of plain paper-hanging is greatly improved if a neat border be placed round the cornice and above the skirting. This imparts a finish which cannot otherwise be obtained. A great advantage is sometimes gained by dividing a room into compartments, or panels, especially if it is of irregular shape. In this case the centre of each panel should be papered first, and after this the styles and rails should be formed by slips of paper, taking the greatest care to keep these exactly level and square. The joins should then be covered with the border, and the angles “mitred,” that is, cut to an angle of forty-five degrees. A very charming effect is often produced by adopting this plan, and although it takes a little longer to hang a room in this manner, the extra trouble will be amply repaid. In selecting a border, due judgment must be exercised in securing one in which the colours are in harmony with the papers they confine; but as this subject has been already treated of, we need only mention it.

Papers for staircases and halls are generally made in blocks, and these should be cut out and hung precisely as other varieties.

In another article under this heading we shall describe other matters in connection with this subject, including the method of varnishing paper-hangings, by which they are rendered much more durable.

COOKERY.—I.XX.

FRENCH DISHES (continued from Vol. III., p. 364).

Bœuf à la Mode (Alamode Beef).—Take a piece of rump-steak, pound it well, and having larded it, put it into a stewpan, with some lemon. Put the cover on the stewpan, and allow it to cook slowly. When the meat has given all the gravy it contains, add equal quantities of stock broth and white wine. Continue to boil it slowly, until the broth thickens; and, before serving it up, squeeze the juice of a lemon over it.

Bifteck, ou Filet de Bœuf Grillé (Steak, or Fillet of Beef Grilled).—Pound the beef until tender, and season it with salt and pepper; then grill it over a quick fire. It is to be served at table with tomato sauce, and potatoes fried in butter.

Langue de Bœuf Salée et Fumée (Ox-tongue Salted and Smoked).—When the tongue has been cleaned and trimmed, cover it for eight days with powdered salt, mixed with pepper and saltpetre. At the end of that time, it is to be covered with more salt for another eight days; then it is to be exposed to the smoke from a fire of wood and juniper berries, and afterwards hung up, to preserve it.

Langue de Bœuf en Ragoût (Ox-tongue dressed as a Ragoût).—Having boiled the tongue, trim it, and cut it along its length into two pieces, in such a manner that the halves may still be held together by the ends, and thus form a kind of circle. Then fry in a stewpan some pieces of bacon, with a few onions cut into small squares; when they begin to brown, some flour is to be added. After, pour into the stewpan some water or stock broth, and season with tarragon, parsley, chives, salt, and spice, and boil for half an hour. Now strain the broth, and place the tongue to soak in it for a short time. Before being sent to table, capers and a little vinegar should be added.

Brétilles de Veau (Minced Veal).—Cut some round of veal into slips; chop up some chives, shallots, and

parsley; put half of the minced herbs into a stewpan, with butter and olive oil, and season it with salt and pepper. Lay on them a layer of the slices of veal, then another of herbs, with butter, then more meat. Lastly, cover the whole with slices of bacon, and a piece of white paper. Now put the lid on the stewpan, and place it over a small fire, putting at the same time some red-hot cinders over the top of the stewpan. When the contents are half done, add half a glass of white wine. When quite cooked, empty the contents into a dish, and rinse the stewpan with a little stock broth, which will serve as a sauce.

Cervelles Frites (Fried Brains).—Steep the brains of some animal—such as the cow, sheep, pig, &c.—in water. Then cut them in pieces, and soak them for some hours in vinegar, seasoned with salt and pepper. Afterwards mix them with crumbs of bread and eggs beat up, and fry them until they become brown; then serve up in a dish, garnished with fried parsley.

Langue de Bœuf à la Broche (Ox-tongue dressed on the Spit).—Boil the tongue, at a gentle heat, in water or stock broth, seasoned with parsley, thyme, chives, salt, and pepper. When the tongue is half boiled, remove and turn it, and also lard that portion of the tongue which will be seen when sent to table. It is then to be placed on a spit, and roasted before the fire until done.

Miroton de Bœuf (Miroton means a dish composed of meat already cooked).—Cut up ox-tongue, ready cooked, into slices, and lay them on a dish. Then fry in butter an onion, some shallots, chives, and parsley, previously chopped up into small pieces. When they have become slightly brown, add some flour and some jelly from meat, and season with spice and salt. When sufficiently done, add vinegar, an anchovy which has been well pounded, and some capers; pour the whole over the slices of tongue, and serve up to table.

Beuf en Fricandeau (Beef served as a Fricandeau).—Put into a stewpan, full of stock broth, some larded beef, with some parsley and thyme, and season with salt and spice. Simmer the contents until the meat is tender, then remove it, and strain the broth, which is then to be boiled down to a jelly. The surface of the meat is now to be glazed with some of this jelly, and placed on a dish. Then dress some spinach, drain, and chop it up with the rest of the jelly, and send it to table with the meat.

Cervelles en Matelote (Brains dressed en Matelote).—Fry, in butter, some onions cut into small squares, and when nearly sufficiently brown add a little flour. When ready, add to this equal parts of white wine and stock broth, boil for a short time, and strain. Put the brains into this broth, and add powdered spice, salt, with garlic and shallots, chopped up small. Boil them gently, and, when ready, add some salad oil. When this dish is sent to table, it should be garnished with pieces of crumb of bread fried crisp in butter.

Filet de Bœuf à la Broche (Fillet of Beef dressed on the Spit).—The meat should be soaked for two days in vinegar, with thyme, onions, parsley, salt, and pepper. It is then to be taken out, wrapped in oiled paper, and dressed on the spit before a quick fire. If preferred, the meat may be soaked for the two days in olive oil, instead of vinegar. It is sometimes necessary to warm up a cold roast fillet of beef. This is best done by wrapping it in paper, well buttered on the inside, and again roasting it before the fire for a short time, until it becomes ready for the table.

Emince de Filet de Bœuf à la Sauce Piquante (Minced Beef).—Take the trimmings, or any other portion of a fillet of beef that may be at hand, and cut them into small pieces. Then simmer them in some piquante sauce; care being taken that the liquid is not allowed to boil, for if that were to happen the meat would become hard, and lose its flavour.

HOW TO DISTINGUISH ARTIFICIAL GEMS.

IMITATION gems are generally made of a composition of flints, pure sand, or quartz, fused with borax, potash, and red-lead. When this composition is exposed in a crucible to the intense heat of a powerful furnace, a clear bright glass of diamond-like appearance is attained. This bright glass or paste is commonly known as "strass," from the name of its inventor. This strass is employed for the imitation of the diamond and rock crystal.

To imitate the other gems, various mineral substances are added to the melting strass, to give it the required brilliancy.

The Sapphire is imitated by a mixture of strass and oxide of cobalt, to give it a blue appearance; the depth of the blue being determined by the amount of cobalt added.

The Topaz is a combination of strass with glass of antimony, and a preparation of gold and tin, called the purple of cassius; but an inferior composition may be prepared with the oxide of iron.

The Chrysoprase may be imitated with strass, coloured with carbonate of copper, oxide of chrome, and oxide of iron, fused together.

The Syrian Garnet consists of strass, glass of antimony, oxide of cobalt, and purple of cassius.

The Ruby is made with oxide of manganese and strass.

The Amethyst is formed of the same composition, with the addition of oxide of cobalt.

The Lazulite consists of strass, coloured blue with oxide of cobalt.

The Opal is a composition of strass, chloride of silver, and purple of cassius.

The Emerald is formed from strass, verdigris, and oxide of iron.

The Aquamarine is strass, coloured with antimony and cobalt.

The Turquoise consists of strass, antimony, and cobalt.

When an artificial jewel is examined under a powerful magnifying glass, it will generally be found to contain a number of minute vesicles, produced by the bubbles of air entangled in the liquid glass while the gem was being made. This is at once a proof of the nature of the jewel in which they are found, nothing of the kind being present in the real gem.

Another method of distinguishing artificial from real gems, is that the glass of which they are formed is considerably softer than a true jewel, and readily admits of being scratched with an onyx, or fine quartz sand.

Artificial gems can also be distinguished by their power of conducting heat being much inferior to that of a real gem. For, when a false jewel is breathed on, the moisture condensed from the breath will remain much longer than would happen in the case of a real jewel. So, also, when an imitation gem is placed in contact with the warm skin, it will cease to produce a feeling of coldness sooner than a real jewel.

Real gems may sometimes be found to be phosphorescent; that is to say, when they are long exposed to the sunshine, they will give out a certain amount of light when placed in a dark room. This is especially the case with the diamond. Now, as the property of being phosphorescent in the dark is not possessed by paste, it proves the jewel that does shine in the dark to be a real one.

The nature of jewels may also be learnt by rubbing them on a piece of warm silk, so as to render them sufficiently electrical to attract small feathers and similar objects. In the case of false gems, they will be found to retain the electricity for only from half an hour to an hour; while the true jewels continue to exert the power of attraction they have thus acquired from a quarter of a day to a day and a half.

AROMATIC PASTILLES.

AROMATIC PASTILLES are small cones which, when placed in a saucer and ignited, give out a fragrant smell.

They may be prepared with four ounces of benzoin, seven ounces of charcoal, three drachms of nitre, half an ounce of cascarilla, and one drachm of myrrh. The materials are to be powdered separately, and well mixed together. Then they are to be mixed into a stiff paste with mucilage of gum arabic, and made into pastilles, either by the fingers, or in a mould.

Another composition of a similar kind consists of gum benzoin, sixteen parts; charcoal, forty-eight parts; nitre, two parts; balsam of tolu, four parts; made into a paste with gum water, and moulded like the last.

Rose-leaves, and essence of roses, are sometimes mixed with these compositions, forming *pastilles à la rose*, and giving out the scent of that flower when burnt.

With the powder of orange blossoms and oil of neroli instead of roses, *pastilles à la fleur d'orange* are produced.

Sometimes pastilles are prepared with olibanum, instead of benzoin. A composition of this kind consists of olibanum and storax, twenty-four parts of each; charcoal, one hundred and twenty-four parts; and nitrate of potash, sixteen parts. The nitrate of potash should be dissolved in a small quantity of water, and poured over the powdered charcoal, which must then be well dried. All the materials are to be finely powdered, and made into a paste with mucilage of gum arabic. When thirty-two parts of rose petals and two drops of essence of roses are added to this composition, it forms the *pastilles à la rose*.

If instead of using the leaves and essence of roses, twenty-four parts of gum galbanum, thirty-two of dried orange-peel, and two drops of essence of neroli, are employed, *pastilles à la fleur d'orange* are produced.

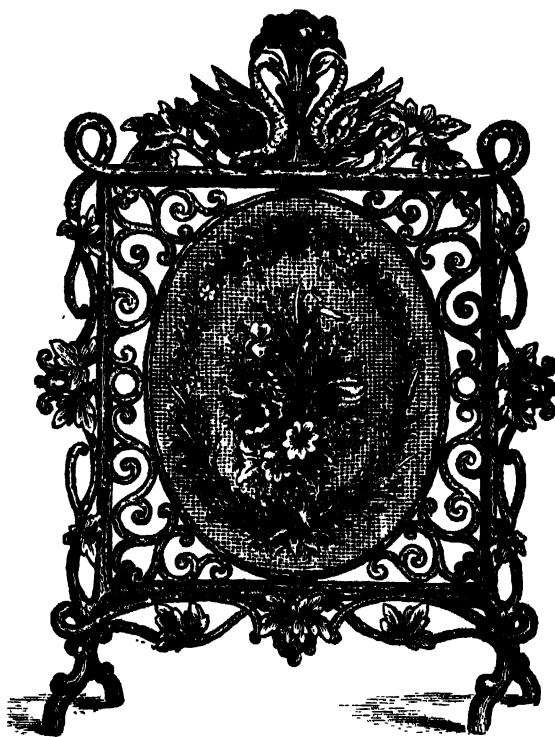
Pastilles which give out the scent of vanilla may be thus prepared—galbanum, twenty-four parts; cloves, sixteen parts; vanilla, thirty-two parts; essence of cloves, one part; and essence of vanilla, sixteen parts; all the ingredients being well powdered, and mixed into a mass with mucilage of gum arabic.

Liquid compositions, of a similar nature, may also be prepared; and of which a small quantity may be poured into a saucer, and ignited.

A fluid of this kind may be formed of gum benzoin, thirty-two parts; gum galbanum, twenty-four parts; and bruised cloves, seventeen parts. The materials are to be well broken up into fragments, and put into a stoppered bottle, with a sufficient quantity of rectified spirits of wine to dissolve the gums. The vessel must be kept in a warm place for some time, until the benzoin and galbanum are dissolved, and then the clear liquid should be decanted into another bottle, and preserved for use.

If it should be wished, this fluid may be scented with any perfume that may be preferred, either by the addition of some essential oil or spirituous essence.

A powder may also be employed for the same purpose of scenting rooms, by its combustion, and it may be burnt either on a hot shovel or on burning coals. It consists of damask rose-leaves and lavender flowers, a hundred and sixty parts of each; Florentine iris and gum storax, ninety-seven parts each. The ingredients are to be chopped up into small pieces, and well mixed together. Then two parts each of the essential oils of bergamot, lavender, cloves, cedar, and one of the oil of neroli, are to be dissolved in forty parts of rectified spirits of wine, and poured over the other materials. The powder should be placed at once in a well-stoppered bottle, and preserved from the access of the air and light. The composition may also be employed for filling perfumed sachets.



WOOL-WORK FIRE-SCREEN.

DESIGN FOR A FIRE-SCREEN IN WOOL-WORK.

THE accompanying illustration represents a very pretty design for a fire-screen, the result of the united labours of the cabinet-maker and the lady of the house. Walnut-wood is an appropriate material for the frame; and the design of the wool-work, of course, can be varied according to the taste and skill of the worker. The group of flowers and enclosing wreath are appropriate to the character of the frame illustrated; but for a design of a geometrical kind, a more formal pattern for the wool-work may be employed; and

the suggestions of the designer of the frame will be useful.

GARDENING.—XXXV.

RAMPHION.

THE root of this is long, white, and spindle-shaped, and is eaten raw like the radish. It is also sliced along with the leaves of the plant, and used as a winter salad. A shady rich border, the soil of which is moderately moist, is most suitable to this plant. Seed should be sown during the months of March, April, and May, in shallow drills six inches apart, the plants to remain where sown; but in case of a deficiency, those that have been pulled up during the process of thinning may be successfully transplanted, provided they are removed to a bed or border precisely similar to that from which they were taken, and inserted perpendicularly without pressing the soil too closely about the roots. The best time for performing this operation is in the evening, although the work may be successfully carried out at any time. The proper time for thinning is when the plants are two inches high, and the distance between them should not be less than six inches asunder in every direction. The plants of the March and April sowings will be fit for use about the end of August, or early in September, and continue in perfection throughout the autumn. Those of the last sowing will continue in good condition during the entire winter, and with a little extra attention till the following April.

Frequent waterings should be given, as they will not thrive unless the soil be kept moist at all times.

RHUBARB.

There are three species of this plant in cultivation—the common, the official, and the bastard.

The leaves of the *Common Rhubarb* are blunt and smooth, with reddish veins, somewhat hairy underneath, leaf-stalk grooved and rounded on the edges. This variety has been the longest in cultivation.

The *Official Rhubarb* has large leaves, somewhat cordate, smooth, and of a light green colour. Under good cultivation they often measure four or five feet in length, including the foot-stalk. This sort is esteemed the most succulent.

The *Bastard Rhubarb* may be distinguished from the two preceding ones by its fine palmate leaves, and is considered the true Turkey or Russian variety. All the sorts are cultivated for the root leaf-stalks, which are peeled, cut up, and used for pies, tarts, stewing, and so forth.

The official rhubarb affords the most abundant and succulent supplies for this purpose. This plant may be propagated either by seed or by division of the roots, but by seed is certainly the best mode; and seed sown in its final situation, and the plants thinned out and never removed, makes the best plantation. If sown in a seed-bed, to be afterwards removed, the seed should be sown in spring, in light, deep soil; and when the plants are up they must be kept clear from weeds, and thinned out to eight or ten inches apart, and they will be fit for transplanting in autumn, and for use in spring. When the roots are divided for propagation, care must be taken that a bud be retained on the crown of each section, and these must be planted where they are finally to remain.

In making new plantations the ground selected should be light and rather sandy, and trenched three spits deep if possible; but anyhow as deep as the subsoil will allow, adding at the same time a good quantity of well-rotted stable manure. The plants, whether seedlings or offsets of the old or divided root, must be inserted in rows three feet asunder, and the same distance apart in the rows. They should be so planted as to leave the crowns within ground about half an inch. They will require no other care than to keep them clear of weeds until the autumn. As soon as the leaves have decayed, the ground must be cleared from rubbish and lightly forked over; after which about a three-inch thickness of good, well-rotted manure must be laid over the bed; and in spring, before the plants begin to grow, the ground must be forked over again, and the manure well worked in with the soil, being careful not to wound the crowns of the plants during the operation. A plantation thus made and managed will continue in good condition for many years.

The flower-stalks should never be allowed to run to flower, but be taken off as soon as they rise. To obtain rhubarb early in spring, a box of any convenient size must be provided; but this should not be less than three feet deep and two wide, and in length according to the demand, say from four to eight feet. This must be made pretty strong and neat, with a cover or lid, and well painted with some suitable colour, and it will thus answer two purposes at the same time—a rhubarb bed and a table. When the box is ready for use and placed in a suitable part of the apartment dedicated to it, and where it will be most useful, some plants—no matter what sort, old or young, so long as they are but strong enough—must be provided, and placed as close together at the bottom of the box as they can be put, with their crowns level. Some sand must be washed in amongst them, to fill up the interstices, and cover the crowns about half an inch deep. The top of the box must then be put on, and only removed to give a little water just to keep the roots moist, as they need no light at all. Thus a liberal supply will

be obtained for a month, and by having different boxes a succession may be had throughout the winter. A stable, where horses are kept up all winter, is a suitable situation for such a box or boxes to stand in. By this means as much rhubarb will be obtained in eighteen inches as in two feet the natural way. This work may be commenced about the beginning of November, and continued till it comes in from the natural ground. The principle upon which this practice is founded is this: that the root of every plant that lives longer than one year contains in itself during winter all the sap or vegetable blood, which it expands in the spring in the formation of its first foliage and flower-stems; and neither food nor light is wanted to enable it to protrude them, but simply heat and moisture; and if the root be removed as soon as its leaves decay, it will vegetate as strongly after being re-planted as if it had retained its first position. In gathering the leaves, a little soil should be removed from about the roots, then, taking hold of the leaf-stalk and bending it down, give it a smart twitch sideways, and it will slip off close to the root without breaking, which is a much better plan than cutting off. Those desirous of saving seed have merely to permit a few of the strongest plants or flower-stems to remain, and they will give an abundant supply of well-ripened seed in July and August.

ROCAMBOLE.

This is a perennial plant, with compound bulbs like garlic, but the leaves are smaller. These cloves are used in the manner of garlic, and nearly for the same purpose, but they are generally considered milder. A light, dry, rich, but not recently-manured, soil suits this plant best; such, for instance, as a fresh hazel loam, newly broken up, as on such it runs fine, and worms and grubs do not infest it, such ground being generally clear and clean. Planting may be accomplished any time from the commencement of February to the end of April, and the bulbs will do equally well. Having some good large roots, divide them into separate cloves, or subordinate bulbs, and plant them singly in rows eight inches asunder, and the same distance apart in the row or drill, which, by-the-by, should not be more than one inch deep. As soon as you have planted all you require, rake the ground even, to cover in the drills. The plants will be very soon up, when it will be necessary to keep them perfectly clear from weeds. The bulbs will be full-grown by the end of July or middle of August, and the leaves changing colour or decaying will be the criterion of their maturity, when they may be safely taken up. The leaves and stalks should be left on the bulbs, which must be spread out in the sun to dry and harden, after which they may be tied up in bundles, and hung up for use as required. When so treated they will keep good throughout the following spring and summer.

ISINGLASS AND GELATINE.

ISINGLASS is usually prepared from the air or swimming bladder of the sturgeon. The method commonly employed in Astrakhan, in Russia, to produce it, is to steep the air-bladders in water, clean them, and having removed the outer coat, compress them in a bag. They are then twisted into rolls, and dried in the sun. Occasionally, to give them a good colour, they are bleached with burning sulphur.

Sometimes the air-bladders of other fishes, such as the cod, are employed for this purpose instead of the sturgeon. But the isinglass thus obtained is of an inferior description, and is produced by boiling the air-bladder, the skin, stomach, &c., of the fish, in water, until it forms a jelly, and then drying the jelly on a warm surface into thin layers.

Isinglass consists of a very pure description of gelatine.

When this substance is placed in cold water, it absorbs it, and swells into a gelatinous mass. In hot water it dissolves, forming a clear liquid, which becomes a jelly when it cools. As small a quantity as four parts of isinglass in one hundred of water being sufficient to produce this effect.

A solution of isinglass in boiling water is very useful for painting over the surface of paper drawings, and engravings, previously to varnishing them. It acts by filling up the pores of the paper, and preventing the absorption of the varnish.

Isinglass is also employed in the preparation of various kinds of sticking plaister. It is dissolved in hot water, and painted over oiled silk. The same solution, with the addition of some tincture of benzoin, brushed over silk or sarcenet, forms the ordinary court-plaister. Sometimes this solution is applied to one side of gold-beater's skin, the other side being coated with a solution of india-rubber, or gutta-percha, or else pale-drying linseed oil. It is in this way that transparent and waterproof court-plaister is prepared.

Isinglass is employed in cookery for the production of various jellies, and other preparations. It is also used for fining coffee and other liquids that may require clarifying.

Isinglass is met with in commerce in the several forms of leaf, long and short staple, and book isinglass. Leaf-isinglass consists of the air-bladders of the fish, after they have been dried and scraped. When these are twisted into a roll, they are known as long, or short staple isinglass. Such pieces as do not admit of this, are folded in a manner which resembles the cover of a book, and are then called book isinglass. When sold in shops, it is cut into filaments by means of machinery.

A cheap kind of isinglass, obtained from the machoiran, or *Silurus felix*, and imported from Guiana, is employed for various common purposes, such as fining liquors. The dried sounds from the cod are imported from Scotland, and are often employed in place of isinglass for similar purposes.

Good isinglass may be distinguished from the common kinds by its having no unpleasant smell, and being readily soluble in hot water. It should contain from eighty-six to ninety-three per cent. of pure gelatine.

Gelatine, in a dry state, is a hard, brittle substance; it is semi-transparent, and is of a yellowish colour. When dry, gelatine is placed in cold water—it absorbs about forty per cent. of water, but is found to be almost insoluble.

According to some authorities gelatine may be obtained by boiling skin and other tissues.

Gelatine may also be obtained out of the osseine or animal matter contained in bones, by either of two processes.

In the one case, the earthy matters are removed from the bones by the action of some acid, so as only to leave the osseine. While, by the other method, the animal matters are dissolved, and the earthy portion of the bone left behind. As every hundred parts of bone contain as much as forty parts of animal matter, a considerable quantity of gelatine may be extracted from them by careful management.

Much of the French gelatine, which is often used for culinary purposes instead of isinglass, although inferior so in the amount of nourishment it contains, is prepared from bone, by the action of acid. The bones employed are placed whole in vessels containing a mixture of one part strong hydrochloric acid with four of water. They are allowed to remain in the acid liquid for about seven days, during that time all the earthy matter becomes dissolved, and the animal portion only left. While this process is going on, great care is taken to keep down the temperature of the place where the vessels are kept, in which case

the materials might become putrid. When the bones have remained in the acid for a week, they are removed and dried. This must be carefully done, as it is essential to the quality of the gelatine.

They now consist only of osseine, and are to be digested in boiling water, at a temperature of 100° centigrade, until dissolved, and converted into gelatine. When the process is ended, the solution of gelatine is strained into a clean vessel, allowed to become solid, and is then cut in blocks, the large pieces being afterwards divided into thin transparent plates, or strips. Sometimes the fluid is removed from the pans in which it was made, while boiling, and is poured into a vessel surrounded by cloth, or some other non-conducting substance, in which it is allowed to cool slowly, and deposit its impurities as it does so.

The acid in which the bones have been macerated, is sold to the manufacturers of phosphorus, who extract that substance out of the biphosphate of lime it contains. Any dregs that may be left in the pan are sold as manure, for which it is well suited. During the boiling of the macerated bones, some fat usually rises to the surface of the liquid; this is also collected and sold for various purposes. Every kind of bone is not employed for this purpose; some bones are too hard, and are not easily acted on by the acid. Others, again, contain so little gelatine as not to pay for the trouble of obtaining it. Some bones contain too much fat to be suitable for this purpose, they are then used for making ivory-black. The bones preferred for this purpose are those from the inside of the horns of oxen or cows. They are suitable owing to their softness, the readiness with which they are acted on by acid, and the quantity of gelatine they yield. The skulls of oxen, cows, calves, and other animals, are also employed for this purpose. That of the sheep is but little used, for although it yields a very white gelatine, yet it does not set so firmly, and is very apt to turn putrid.

Gelatine is obtained in England from bones, by first crushing them between rollers, and then acting on them in cylinders by steam, of a pressure of from four to five pounds on the square inch; the gelatine, as it forms, being removed by a stream of cold water. The hot liquid gelatine is then poured out on a flat surface, where it cools into sheets.

Gelatine, for culinary use, may be prepared from the parings of skins. They are placed in a vessel containing a weak solution of caustic soda, and afterwards bleached by the action of sulphurous acid, produced by the combustion of sulphur. The pieces of skin thus acted on are then boiled in water to extract the gelatine, into which they are partially converted.

A common kind of gelatine is prepared in France out of the cuttings of the leather employed in the manufacture of gloves. It is sold not only of its natural colour, but also tinted with various colours.

When gelatine is boiled in hot water and other liquids, it dissolves, and forms a jelly as it cools. The colour may be removed from this jelly, if desired, by animal charcoal, and it may also be coloured if wished. The colours usually employed for this purpose are—beetroot for red, spinach for green, and sulphate of indigo for blue.

LIQUID CEMENT FOR FASTENING INDIA-RUBBER TO WOOD OR METAL.—A cement of this kind is formed by dissolving one part of powdered shellac in ten times its weight of the strongest solution of ammonia (liquid ammonia fortiss.). They form when mixed together a mass of a slimy consistence, which after three or four weeks becomes liquid. When applied to india-rubber it softens that substance, and causes it to adhere tightly to metal or wood. After it has been exposed to the air for a time, the ammonia volatilises, and the cement becomes hard, and prevents the escape of both air and fluids.

CHILDREN'S DRESS.—XVII.

CLOTHING FOR A BOY OF EIGHT YEARS, INCLUDING KNICKERBOCKER SUIT.

Flannel Vest.—Fig. 1 will be found a good pattern for a flannel vest for a boy of eight years old. Children vary considerably in size, but we give our measures for a boy of average growth of the specified age. A pattern can first be taken as usual in any available material, and tried on. Children's clothes should always be loose and easy, and when new, rather too large, as they grow quickly. Flannel must either be shrunk before it is cut out (shrunk

A Shirt for a Boy of Eight Years.—We will first describe a night-shirt, as it is of course very much easier to make than a day-shirt. There is less shape in the shirts for a boy of this age than for older boys, and consequently less trouble and time is required to complete them. The best plan is to buy long-cloth, as near twenty-five or twenty-six inches wide as you can procure it. A night-shirt may be made with or without shoulder-pieces, but it is stronger with them. Measure fifty-eight inches of the long-cloth, and cut it off; fold this in two, and lay it on a table, the lower piece an inch longer than the upper. Thus you have twenty-eight and a half inches long for the front of

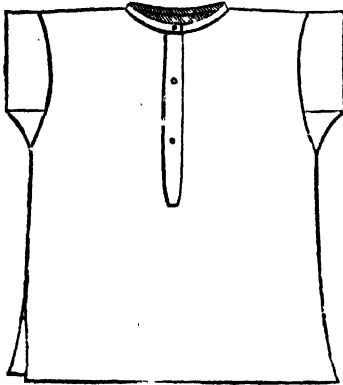


Fig. 1.

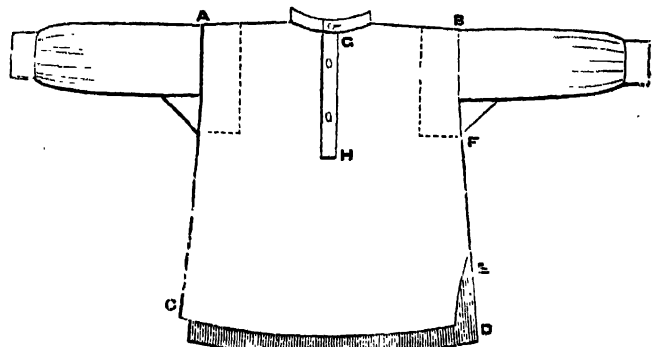


Fig. 2.

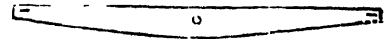


Fig. 11.

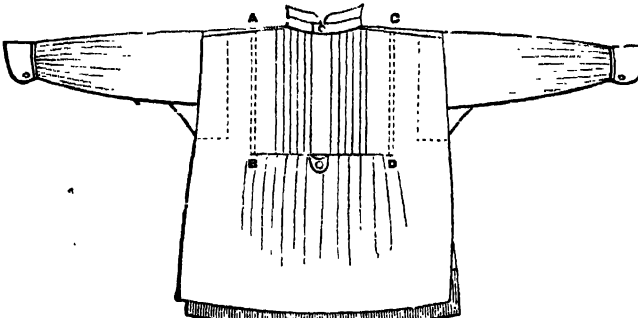


Fig. 3.

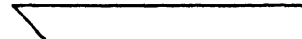


Fig. 8.

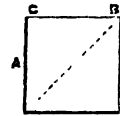


Fig. 5.

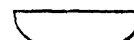


Fig. 6.

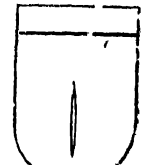


Fig. 4.

flannel is now sold in the shops), or the garment made very much larger than is required, as it will always shrink gradually, even with very careful washing and quick drying. A flannel jacket may be made with shoulder-pieces, or simply doubled at the neck. It should be about twenty-seven inches long, and twenty-five inches wide. There is no shape in it: merely round out the armholes and the neck, which may be fourteen inches round. Cut the neck an inch or an inch and a half lower in front than behind. The sleeves are straight pieces, rounded at the side where they are to be put into the vest, and joined with a gusset, which can be seen in the illustration. It is best to herring-bone the side seams and all parts of the sleeves. The side seams are left open two or three inches from the hem, which, with the open sides, should be herring-boned. Put a strong loop of cotton of three or four strands, and button-hole it over, at the corner of the opening, to prevent it from being torn. Cut open the front ten inches down, bind the under-edge with muslin. Put a false hem, about an inch wide, of white cambric muslin to the upper edge. Bind the neck round also with a half-inch band of muslin. Buttons, and button-holes neatly made, finish the vest.

the shirt, and twenty-nine and a half for the back. The half inches are for the hems. Hollow out the neck by folding the long-cloth in half lengthways, and placing back and front together, cut the half circle through the material four times double. Then separately double the front in half, and cut it down half an inch lower towards the centre. Next cut the opening in front ten inches long. If there are to be shoulder-pieces, cut the material apart from A to B, Fig. 2. Run and fell the side seams. Let in the shoulder-pieces piped each side, and line them. Make the sleeve, stitch it in on the wrong side. Cut a straight broad band, marked by a dotted line, from B to F. Run it over the join of the sleeve into the armhole on the wrong side, turn it over and hem it down. This band is two and a half inches wide, and fifteen long. The side seams of the shirt are left open from E to D, six to six and a half inches, and a gusset let in where they join. The gusset is sewn, and is about an inch square when complete. The hem at the opening is narrow; at the ends from C to D half an inch wide, back and front. An inch-wide hem may be made down each side of the front (for which allowance must be made in the size of the neck), or a narrow hem one side, and a false inch-wide hem on the other.

Gather any fulness there may be at H, or pleat it in one pleat and stitch it across. The neck is set into an inch-wide band, double, cut from a straight piece of long-cloth the seluage way. Three buttons and button-holes are enough.

The sleeve is made of a straight piece of long-cloth, ten inches long and fifteen wide. Run and fell this together, and set it into a cuff five inches wide (to be double), and seven long. Join the cuff round. Gather the sleeve, run it to the right side of the cuff, and hem down the wrong side.

The measurements, when complete, will be:—Length in front, twenty and a half inches; back twenty-nine inches. Width, from C to D, twenty-five and a half inches. Length of sleeve, nine and a half inches. Length of shoulder, eight inches. Round the neck, fourteen inches; round the cuff, six and a half inches. Length of opening, ten inches.

Day-shirt.—The measurement of this will be the same as the night-shirt. Cut off a length in the same way, then cut the back and front apart at the shoulders A to C.

wrist to within an inch of the size of the boy's wrist, measured loosely. Cut the cuff by Fig. 6. Two pieces of linen are wanted for each cuff: run them together round the curved edge. Reverse them, tack them together, and then stitch the rounded edge a little way in. Remove the tacking threads, stitch the right side of the cuff to the sleeve, and hem down the wrong side. Put a row of ornamental stitching as near to the gathers as possible across the straight edge of the cuff.

How to prepare the Front to be let in.—Turn down an inch-wide hem in the piece of linen which is to form one side of the front. Tack it, fold a couple of tucks, and tack them. Stitch the tucks and the hem. Both sides are alike—the length is eleven inches, or ten and a half, and the width can be judged from Fig. 3. Before putting on the front, tack the two pieces together down the centre, placing one with hem entirely over the other. Linen is used for the fronts. Then buttons can be sewn on and

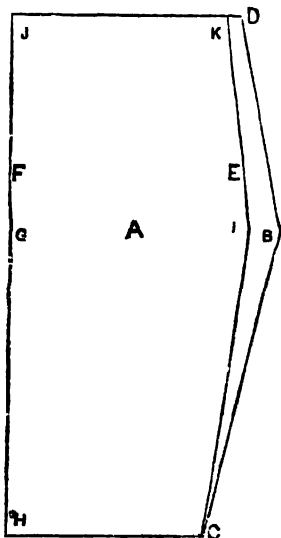


Fig. 7.

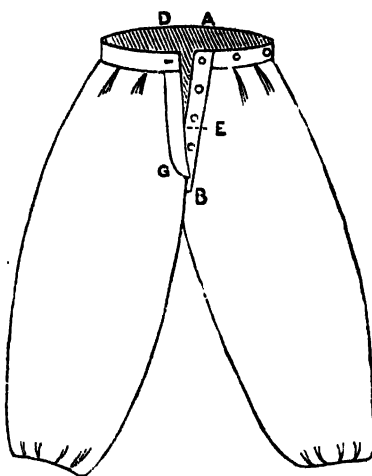


Fig. 9.

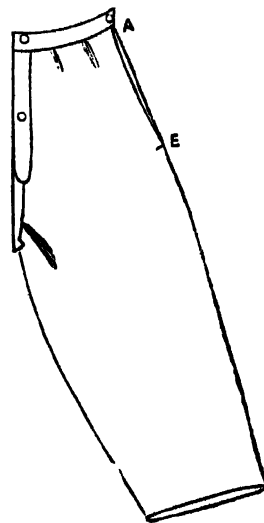


Fig. 10.

Lay a pleat down the front (from G to H, in Fig. 2), which will reduce the width to fifteen inches. Lay the tucked front on this; tack it; turn in the edge at both sides, A to B and C to D, in Fig. 3. Stitch down close to the edge, then cut out the long-cloth at the back, leaving enough to turn in both sides. Turn this in and hem it down. Your tucked front is tacked together down the centre. Untack it; gather a half of the waist to each half of the front. Lay an inch-wide band over the join of the gathers and front on both sides. Cut a double piece like Fig. 4, which is the actual size; run the two pieces together near the edge. Reverse them: make a button-hole. Insert these under the band just described. It is to button to the drawers, and keep the shirt in place. Make the shoulder-pieces, piping them, and stitching the shirt back and front to them, and lining them as usual. Leave open seven and a half inches for the armholes, run and fell the seams, leave open six inches at the sides above the hem, put in a gusset, and hem the ends as you did the night-shirt. Next hollow out the neck as you did for the night-shirt. Cut two half-inch bands, put one on the front and the other on the back of the neck, stitching them on the wrong side, and turning them over. Make the collar, and insert it by stitching it to the front band, and hemming the back band to it. The sleeve is cut in a similar way. Fig. 5 is the gusset. Fold it in half at the dotted line B; sew two sides, as A and C, to the sleeve; the other two will fit to the armhole. Open the cuff at the wrist about three inches: hem both sides, gather the

button-holes made. Make the collar in precisely the same way as the cuffs.

KNICKERBOCKER SUIT.

The Knickerbockers.—A knickerbocker suit consists of the vest or waistcoat, the jacket, and the drawers. Various materials are suitable for the purpose. For children so young, blue serge or black velvet is the best material; and in the summer, brown holland with a white braid.

Each leg is cut separate. Fig. 7 illustrates the cutting of the separate leg. From D to B is the back, E the front. The length at the side, F, is twenty inches. Laying the leg, as shown in Fig. 7, on the table, the measure from G to B, the broadest part, is eleven inches; the front half, on the contrary, from G to I, measures only ten inches. From J to D, the back half of the waist, is eight and a half inches; from J to K, the front, eight inches. The measure of the two halves is equal at the knee, H to C, and is (double) seven and a half inches. From D to B the length is eight inches. If the material used for the suit is not wide enough to cut the leg entire, make it in two pieces, and join it down the outside, from J to H. A good grey twill is appropriate as a lining. Tack the lining to each leg; if joined, stitch the pieces together, lining and all. Stitch the legs together from B to C. Stitch the backs of the legs together from D to B, and an inch up the front at I. Turn back the linen to make this join; then run it together on the

wrong side, and afterwards tack it again to the legs thus joined. Cut a piece of the material like Fig. 8, line it, and put it on the under side of the knickerbocker, from K to I, letting in the edge of the leg between the false piece and the lining. This is for the buttons, and may be seen in Fig. 9. Cut a similar piece, but round the edge, put it on the other side, and make the button-holes in it. Fig. 10 shows this piece. Cut open each side of the knickerbockers, from A to B in Fig. 10, four and a half inches. Put a pocket in the front halves, turn in the lining and material, and run them together. The whole of the back is put into one band, an inch and a half wide, and eleven and a half inches long. The fronts are put into two bands, each six and a quarter inches long. It will be seen that the false piece in front goes over the band on one side, and under it on the other. Line the bands with a strip of lining an inch and a half wide. There are two pleats in each half of the front of the legs, and four pleats behind, in setting them into the band. There is a button and button-hole each side of the band where the side opening occurs, and which overlaps an inch in fastening. The front overlaps an inch where it buttons. There is also a button each side of the front, and buttons at the back of the band, at D and A (Fig. 9), for the braces.

The outer part of the knee is ornamented ten inches up the leg with military black braid, an inch wide. This may very well be put on in the form of four diamonds of equal size. Make a half-inch hem at the knee, and run an elastic into it.

Drawers for little boys of eight years old are often left loose at the knee, and not braided as described, but cut open at that part about three inches. The lining and material are then turned in to meet, run together, and a broad braid, often a white one, run round the edge a little way in.

In Fig. 9, B shows how far the fronts are united (A to C): stitch the upper piece to the under piece of the fastening, across the drawers. Fig. 11 shows the shape of the band, which is not quite straight, but deeper behind. Under-drawers are always worn, and are made of plain long-cloth. Cut them by Fig. 7, allowing an inch more from K to I. Turn this down, and fell it. Run and fell the legs together from B to C. Join the two legs from D to B, and an inch up the front. Cut open the sides (J to F) six inches. Hem them from H to C. Gather the top, and set in a band in three pieces.

HOUSEHOLD CHEMISTRY.—XVII.

THE METALS.—IRON (*continued from Vol. III., p. 357*).

IF, having obtained the cast-iron, we place it in a furnace of a peculiar construction, in which it is exposed to the intense heat of a powerful flame, but without coming in contact with the fuel—the carbon that the metal contains is burnt into carbonic acid gas, which escapes, the iron being left behind almost free from carbon, but containing silica and alumina. During the action of the flame on the cast-iron, the metal as it loses its carbon loses also its power of melting, so that at last it is left in the condition of a pasty mass. Then a portion of the intensely heated mass is placed on an anvil, and exposed to the blows of a heavy tilt-hammer moved by steam-power, and by which the silica and alumina are compressed out of the pores of the iron in a fluid state. While the mass is still hot it is passed between rollers, and made into bars; it is now known as wrought-iron.

If a bar of wrought-iron be examined, it will be found to have a fibrous structure, which has been compared to that of flax; while the cast-iron from which it was prepared is granular in texture. It is to the fibrous structure of wrought-iron that the great strength of that material is

due. The fibrous structure of iron may be readily shown by macerating a piece of bar-iron in dilute hydrochloric acid. After a considerable time, however, especially if exposed to vibration, the iron is found to lose its fibrous texture, and assume a crystalline character; and by doing so, becomes more brittle, and loses its power of supporting weights.

When bars of wrought-iron are exposed to heat in contact with charcoal, they absorb carbon, increase in weight, and become converted into what is called blistered steel, from the blisters that are raised on the surface of the metal during the process. The process is known as converting iron into steel by cementation. The manner in which the carbon enters the substance of the iron to convert it into steel is yet unknown, but it is supposed that the carbon enters the metal, in combination with oxygen, in the form of carbonic oxide; and that while in the metal the carbonic oxide becomes decomposed into carbon and carbonic acid; the carbon then uniting with the iron to produce steel, while the carbonic acid escapes from the pores of the heated metal, and, as it does so, produces the blisters on its surface.

When blistered steel is made into bars of smaller diameter, and well hammered, while intensely heated, under a tilt-hammer, it forms what is called tilt-steel; and when this process is repeated, it is known as shear-steel; and is thus named from having been first employed for the manufacture of shears for cutting cloth.

When blistered steel is melted with some flux containing carbonaceous matter, it forms cast-steel. During this process it loses some silicium and a portion of its carbon. The great advantages, however, possessed by this kind of steel over the other varieties, probably depend on the uniform nature of its composition. The amount of carbon contained in it much influences the quality of the cast-steel, it having been found that steel of hardest quality is produced when the carbon contained in it amounts to one-sixtieth of the entire mass.

The quality of a piece of steel may be learned by testing on its surface with dilute nitric acid. When the steel is good, and of a uniform texture, it assumes a dark grey colour, which should be of the same tint throughout the entire surface; but when the surface of the steel in contact with the acid exhibits a mottled appearance, it proves that the metal is of inferior quality, and that the carbon it contains has not been equally diffused throughout its texture.

By means of peculiar treatment, steel may be made either as soft as bar iron, or so hard as to cut glass. This is done by making the steel red-hot, and in the former case allowing it to cool slowly; while in the latter case it is cooled rapidly, by plunging it in cold water. For ordinary purposes, when a less degree of hardness, and consequently of brittleness, is required, the heated steel is introduced into oil or fat.

Sometimes articles of wrought-iron or cast-iron are converted into steel on the surface, by what is called "case-hardening." This is done by placing it in a closed vessel containing charcoal or ferrocyanide of potassium. Occasionally, where the article to be converted into steel is delicate, it is enclosed in leather, previous to subjecting it to heat. This process is known as case-hardening. Articles of cast-iron may have their carbon removed, and thus be converted into wrought-iron, by subjecting them to a red heat in a crucible, while surrounded with the oxide of iron.

There is a variety of steel, known as Wootz, or Indian steel, which possesses extreme hardness, and may be manufactured into articles possessing a very sharp edge. This is thought to be due to the aluminium and silicium it contains.

Silicium and phosphorus are both occasionally met with in iron that has been carelessly prepared. Iron of

this kind is technically known as "cold short iron," from the property it possesses of becoming brittle at ordinary temperatures.

The form of carbon called plumbago, or blacklead, met with in mines, usually contains a small proportion of this metal. It has also been found that when cannon or other cast-iron articles have been immersed in the sea for long periods, the greater portion of the iron becomes removed (probably by the chlorine of the sea-water), and a substance much resembling plumbago is left in its place.

When iron pyrites (sulphuret of iron) is partially roasted, and then exposed to the action of the atmosphere and moisture, it absorbs oxygen, becoming converted into the sulphate. This salt, which is commonly known as green copperas—from its colour—is much used for dyeing black, ink-making, and other purposes. In its ordinary state it is very impure, containing many other substances. Pure sulphate of iron consists in each hundred parts of a little more than twenty-seven and a quarter parts of iron, thirty of sulphuric acid, and forty-two of water. It may be prepared by dissolving one hundred parts of iron in one hundred and seventy-five of sulphuric acid, diluted with water.

When sulphate of iron is dried, and exposed to heat in an earthen retort, forming anhydrous sulphuric acid—employed in dyeing, to dissolve indigo—it distils over, and an oxide of iron is left in the retort. The oxide thus obtained is known under various names, such as colcothar, crocus martis, rouge, Paris red, &c. It is much employed for polishing metal work, jewellery, glass, and similar articles, and also as a pigment.

What is commonly known as galvanised iron, for outside work, is prepared by dipping the iron plates—previously made chemically clean—into a bath of melting zinc, and afterwards into one of tin.

VINEGAR, AND HOW TO MAKE IT.

11.

WHEN liquids which contain alcohol, such as wine, beer, and other fermented liquors, are placed in contact with a ferment, and made to undergo the acetous fermentation, it is noticed that the clear liquid becomes troubled. Vesicles are observed floating in the fluid, which, rising to the surface, form a scum, and, after a time, fall as a sediment to the bottom of the vessel. While this action is going on, the liquid gives off a sourish smell, and its temperature rises above that of the surrounding atmosphere. Minute bubbles are also formed in the liquid, which, when examined, are found to consist of carbonic acid and nitrogen gases. At length, when all the alcohol in the liquid is converted into acetic acid and water (vinegar), the process ceases, and the temperature falls to that of the surrounding air.

Vinegar prepared from wine is usually preferred, from its purity and strength, to that obtained from malt and similar substances. It also differs from them by containing more or less of the supertartrate of potash—cream of tartar. Hence this substance has been added to the other kinds of vinegar to convert them into an article which could be passed off as pure wine vinegar.

The method adopted in Orleans to produce the best wine vinegar consists in, partially filling vessels with a certain quantity of the best vinegar that can be procured. The vessels are to be kept at a regular temperature, and then ten measures of wine are added, this wine being either white or red, according to the colour of the vinegar we wish to produce. After the wine has been allowed to ferment for eight days, ten measures more are added. When eight days have elapsed, ten measures are again poured in. This process is repeated, until at length forty measures of wine have been added to the vinegar previously

deposited in the vessels. The whole contents are then allowed to remain undisturbed for eight days, until converted into strong vinegar, and then forty measures are removed, and ten measures of fresh wine added every eight days, until forty measures more are put in, this process going on continually, until at length it is necessary to stop the process for the purpose of removing the sediment with which the vessels are filled, and which consists chiefly of cream of tartar and other matters derived from the grapes of which the wine employed was made.

For the purpose of converting fermented liquids into vinegar it is necessary to expose as large a surface to the atmosphere as possible, so as to allow them the more readily to absorb oxygen.

Vinegar may be obtained from the fermentation of many vegetable juices. The *Sambucus nigra* and *Phoenix dactylifera* are plants from which large quantities of vinegar can be obtained.

In countries where spirit is cheap, large quantities of vinegar are prepared by another method.

When the vapour of alcohol comes in contact with finely-divided metallic platinum—commonly known as platinum black—atmospheric air being present, it undergoes decomposition into acetic acid and water. This is caused by the platinum black compelling the alcohol to unite with the oxygen of the air, the acetic acid obtained in this way being so pure that it may be employed for scientific as well as household purposes.

It has been ascertained that when a hundred parts of alcohol are converted into vinegar in this manner, one hundred and eleven parts of acetic acid, and fifty-eight parts of water, are formed, sixty-nine parts of oxygen being absorbed from the atmosphere during the process.

ODDS AND ENDS.

A French Method of Preserving Eggs.—Paint over the surface of the eggs with a thick mucilage of gum arabic in water. This may be easily prepared by putting some crushed gum arabic into a teacup, pouring boiling water over it, and allowing it to remain by the fire until dissolved. The commonest kind of gum arabic may be employed for this purpose. When the eggs thus coated are dry, they should be kept in a box surrounded by very dry powdered charcoal. When required for use, the gum may be removed by placing the egg in tepid water. Eggs intended to be thus preserved should be very fresh, kept at a regular and moderate temperature, and preserved from the contact of air and moisture.

To make Blackberry Wine.—Press out the juice from fully-ripe blackberries and let it ferment, being lightly covered over for a couple of days, when it requires to be skimmed, and a half quantity of water, together with two or three pounds of raw sugar, added to each gallon of juice; after which it should remain for about a day and night in an open vessel, be skimmed and strained, poured into a clean cask, and bunged up. A bottle of brandy added in the cask improves the wine. It should remain at least six months in cask, and then be bottled.

How to Preserve Milk.—Pour the milk into a bottle, and place the vessel up to its neck in a saucepanful of water, which is then to be put on the fire, and allowed to boil for a quarter of an hour. The bottle is now to be removed from the water, and carefully closed with a good and tight-fitting cork, so as to render it as air-tight as possible. Milk which has been preserved by this process has been kept for more than a year without turning sour. Milk may also be preserved by putting a tablespoonful of horse-radish, scraped in shreds, into a panful of milk. When milk thus treated is kept in a cool place, it will be found to keep good for several days, even in hot weather.

THE HOUSEHOLD MECHANIC.—XLVIII.

WHITEWASHING AND PLASTERERS' WORK.

ALTHOUGH not altogether pleasant occupations, plasterers' work and whitewashing are often needed in the household; and it will be found that the ability to execute little jobs of this description will be exceedingly useful to the household mechanic, as well as effecting a considerable saving in the course of the year. It is important, from a sanitary point of view, that the ceilings and walls of the house should be frequently cleansed; but if on each occasion a builder has to be employed, experience will have taught the householder that the expenses of each cleansing are very considerable. Hence it frequently happens that rather than expend cash, which is perhaps needed for other and seemingly more important purposes, whitewashing and cleansing the walls is often delayed far too long, and even at times altogether neglected, to the injury of the health. This being the case no apology is needed for bringing this subject under notice; and we will proceed at once to offer such instruction as will enable the household mechanic to perform all such work easily, and at but small cost and trouble.

As it is not probable that the amateur will undertake any very extensive work in plastering, such for instance as plastering an entire room, we shall confine our remarks here to such small work as is frequently required in order to repair injuries to the walls caused by the rubbing of furniture against or by the driving of nails into them. This kind of work is technically known as "stopping," and should always be done well and thoroughly before the walls are papered. The only tools required will be a small trowel with straight edges, and a whitewash brush, which latter should be of good quality, as a bad brush will be found dear at any price. Before using, this should be well soaked in clean water for some hours, in order to allow of the hair swelling. If this be neglected, the hair will draw out and the brush will speedily fall to pieces.

Besides these tools a small board will be required, upon which the material used for stopping may be prepared. This may be about twelve inches square, and an inch thick; and it will be an improvement if on three sides of this, pieces of board of the same thickness, and three or four inches deep, be nailed. This will render it very convenient and cleanly in use. For the ordinary purposes of stopping holes in walls, the best material will be that known as "plasterers' putty," mixed with a small proportion of plaster of Paris. This "putty" is simply slaked lime, which has been allowed to dry to about the same degree of hardness as ordinary glaziers' putty. If the tyro happens to reside in the vicinity of a builder's yard, he may for a few pence procure as much as will last him a year; if not, his best plan will be to procure a few lumps of "chalk lime," and throw them into a pail containing as much water as will just cover them. When the lime has absorbed all the water, add as much more as will allow of the whole being stirred into a thick paste; and allow it to stand for at least twenty-four hours, when it will be ready for use.

A portion of this putty should be placed upon the board, and a bag of plaster of Paris being provided, they should be mixed in the proportion of about one of plaster to three of putty. If the mixture be too stiff, water may be added. It should be remembered that as the plaster sets, the material will become harder; consequently it should be mixed rather softer than is requisite at the onset, and not too long before it is required for use.

A pail of clean water and the whitewash brush should now be provided, and the portions of the wall which are to be repaired should be well soaked with water, and the mixed putty and plaster pressed well into the hole and smoothed with the trowel. When nearly hard the whole may be brushed down, and any little inequality removed.

It often happens that some of the cracks are too small to be properly stopped. In this case it will be better to pare away the edges with a knife or trowel till they are about three-eighths of an inch wide, when they can be effectually stopped as above described.

The material we have just mentioned is only suitable for stopping apertures in walls, and will not answer for those in ceilings, or in any place which is subject to much heat, as for instance round the edges of or underneath stoves or ovens. For the latter purpose nothing can be better than the ordinary Roman cement, which should be applied in precisely the same manner as described for plaster. If it should be found that the plastering upon the walls is loosened to any considerable extent, it will be advisable to cut it away down to the brickwork or lathing before stopping, as eventually it is sure to fall, perhaps soon after the walls are nicely papered. Particular care should always be taken to thoroughly soak every portion of the work before applying the stopping material, or the operation cannot be successful.

As we have before remarked, the materials used for stopping walls are not adapted for use in ceilings. For this purpose, unless the damage is very extensive, nothing is better than a little common whitening, mixed with a small proportion of plaster. Of course if large patches be out, the work must be re-plastered as described for walls; but this is seldom the case. In filling the cracks in a ceiling it is better not to use the trowel, but to substitute for this implement that which is called a "putty stick," which is simply a slip of thin wood, cut to a sharp edge, something like a dull chisel. The use of this we shall now explain, as it more properly comes into the operation of whitewashing.

The great mistakes which the tyro is likely to make in attempting to whitewash a ceiling, are two, namely, that of attempting to cover the dirt with whitewash instead of removing it; and, secondly, that of using the whitewash too thick. It should be remembered that the colour dries opaque, although when wet many defects and stains may be seen through it; and it is far better to go twice over a ceiling with thin colour, than to try to do it at once, as in that case the work is sure to look rough and irregular.

The first thing will be to prepare the whitewash. For an ordinary-sized room, the following materials will be required:—Two cakes of common whitening, one pound of double size, a small cake of laundry blue, and about a tablespoonful of ground alum. The whitening should be placed in a pail, and warm water poured over it until it can be mixed into a thin paste. The size should then be melted in an old saucepan, and added to this. Then the blue, which has previously been dissolved, should be well stirred in; and, finally, the ground alum. This latter will cause the mixture to effervesce considerably; and when this disturbance is over, the whole should be strained through coarse canvas or a fine sieve. When cold it will be ready for use. If several rooms are to be whitewashed, it will be better to mix the quantity at once, which will effect a considerable saving both of time and material.

Before commencing the work, the ceiling should be carefully examined, in order to ascertain what repairs will be needed before whitewashing. It frequently happens that an old ceiling has been cracked and stopped over and over again, and badly whitewashed, until it is extremely rough and ridged over its whole surface. All these irregularities should be removed. Commence in one corner; and, with a brush and a pail of clean water, wash off all the old whitewash, and remove the irregularities with the edge of the trowel. If any cracks or holes are left, these should be carefully stopped with the mixture of whitening and plaster, using the putty-stick and not the trowel for the purpose. The whole should then be brushed down with plenty of water until the surface is smooth and even.

The whitewashing may now be proceeded with. The brush, being perfectly clean, may be dipped into the colour about half-way up the hair, and just dabbed gently against the side of the pail, to remove that which is superfluous, and prevent its dropping about. The mixture should then be applied to the ceiling, brushing it about in various directions, and finally finishing it off by drawing the brush along in straight lines, to smooth the colour down. When as much of the work is covered as can be conveniently reached, the ladder or steps may be moved, and a fresh space be covered, always taking care to keep the fresh part of the work well worked into that which is already done. Of course, the greatest care must be exercised in completely covering the whole of the ceiling, in order to avoid dirty uncovered patches. The more rapidly the work can be executed, the better will be the result; provided always that each part is well done.

In the above directions we have supposed that the ceiling is simply a plain one, and not enriched or decorated either by cornices or centre flower. If, however, these are present, we should advise that they should be covered first, if they are intended to remain white. If the work be intricate and very much undercut, a smaller brush than the ordinary whitewash brush will be required; that known as a painter's sash tool, and about an inch in diameter, will answer well. With this the colour should be worked into every part of the enrichments, especial care being required in this particular.

A far better effect is, however, produced, if the enriched work, such as the centre flower and cornice, are slightly tinted. This involves very little extra trouble, and a very rich effect is produced. The tint selected should harmonise with the paper which is to be placed, or is already upon the walls; and, as a rule, any of the paler greys will be better than very decided tones of colour. If this tinting is to be adopted, the body of the ceiling should be whitewashed first, and the enrichments afterwards tinted.

In this paper we have supposed the room to be undergoing thorough repair, and that the paper was to be removed; hence we have not given any particular caution against splashing the whitewash over the walls. It frequently happens, however, that a ceiling is dirty before the paper is damaged. In this case no splashing can be allowed. A very good plan is to procure a few yards of brown carpet paper, which should be pinned up against the wall nearest the work, and removed as it progresses. There is really no need to make much mess over such a job; and a little care will suffice, provided that a good brush be used. In conclusion, we would remind the tyro that the difficulty of obtaining a good and even coating over a ceiling increases in proportion to its size; consequently, he had better confine himself to small work until he has acquired some little experience.

RIDING FOR LADIES.—III.

To run back, draw the reins towards the body firmly, feeling the effect the hand has on the horse, at the same time keeping the leg close to the side. The movement must not be hard or continuous, which would resolve itself into simply pulling at the animal's mouth; but this gentle but firm drawing back of the reins should be repeated at each motion, which must be quietly and deliberately done, and not continued too long. It will aid in establishing a perfect understanding between horse and rider, making the horse readily obey the hand, and the rider realise how great an effect her every movement has on the animal.

Thus encouraged, she may commence to ride in a circle, then in a double circle, as though attempting to describe a figure eight, by which, in fact, she is changing her position continually from left to right and confirming her

previous lesson in her mind, while rendering the horse obedient.

Thoroughly established in the preliminaries, the pupil may next proceed to learn to trot, and this in a straight line to commence with.

Now trotting is by no means an easy art to acquire, and there are nine chances to ten that it does not come instinctively; yet, once mastered, it is most resting after a hard day, and thoroughly enjoyable.

The signal to the horse to trot is touching him on the right shoulder with the whip.

The rider herself must sit well forward in the saddle, having the left leg well back, the heel down, the toe up, the thigh pressed against the saddle, the left leg thus balancing the body, which inclines forward, the head erect, the hands firmly held against the waist, the fingers grasping the reins lightly, the right leg well round the pommel, which will enable her to rise with precision, suiting her action to the movement of the horse.

She must avoid starting too fast, rising too much to the left, or too high; endeavouring instead to maintain her seat as closely as possible. As the action of the horse raises her, she must lean forward, resting much of her weight on her right leg, and as little as possible on the left foot in the stirrup. Indeed, many masters teach their pupils the necessary movement with the left foot altogether out of the stirrup, preceding this mode of instruction by teaching the lady to rise without a stirrup from a motionless horse, as high as possible, very slowly, and balanced simply by the grasp of the legs. This at first is found to be extremely difficult, but having accomplished it, the pupil must be taught to remain raised as long as she can, until the movement is executed with precision; then on attempting it with the stirrup it will be found comparatively easy. The lesson should be short at first, but strict and firm, allowing only the best method to be pursued. When this has been acquired, then it is well to attempt trotting in the school only, until the mode of doing it well is thoroughly learnt, for there is so much to be thought of, and while the motion may be precise, the body may be in a bad position.

After practice has brought perfection, or nearly so, the next point is to learn to trot on the curb; but this should only be attempted when the seat is good, and the command over the horse complete.

To arrange the reins in order to ride only on the curb, place the four fingers of the left hand inside the snaffle, the curb between the little finger, drawing it up so that it rests flat on the fore-finger, the ends falling over the knuckle; or, for greater safety, it is advisable to hold the buckle-end of the curb in the left hand, so as to make the hold on the rein more steady, the action of the wrist being difficult to acquire, as the slightest movement, almost imperceptible may be, has its effect on the sensitive mouth of the horse.

Before trotting, the pupil should try walking and using the curb only, holding it throughout lightly and firmly. When she begins to trot she will find that without great care and a strict adherence to rule, the horse will break out into a canter, this disposition of the animal to alter his pace being one of the things specially to be guarded against; though by her perfect command over him she should be able to regulate his speed on the instant, and have him so well in hand that she can at will turn him to the right or left, the movement of the hand being almost imperceptible.

As a rule, both snaffle and curb are used. It is advisable, however, to learn the use of the curb only. Education in riding is not perfect without it, and this difficulty of acquiring the necessary suppleness of wrist cannot be too forcibly impressed on the pupil's mind; so much of the safety of riding depends on it. It is almost impossible to spend too much time or care in

acquiring it, the motion of the little finger being as important as the position of the body; and on that not only the rider's but the horse's comfort depends. A bad seat produces a sore back, which many a poor steed has to endure simply because his rider has not learnt how to maintain a proper balance, and so throws her weight unfairly to one side.

In trotting, the rising cannot be too neatly or precisely done; any undue inclination to one side is ungraceful, and destroys the balance.

Cantering should be learnt after trotting, as the latter is best adapted to strengthen the pupil in all she has learnt with regard to the perfection of seat, balance, and position of the hands. She will have quite established her mastery over the horse, and be able to realise when his canter is true or false. He must lead with the right foot, and be instantly checked if by mistake he starts with the left, by striking the right shoulder with the whip, pressing the leg against his side, pulling at the same time the near rein. If the pace be untrue, it is that the hind-legs do not follow the direction of the fore-legs, which the rider recognises in a moment, by the extreme discomfort of the movement. It must be stopped at once.

In order to put the horse into a canter, touch the left shoulder with the whip, raise the reins, slightly tightening the inner ones a little, while pressing the leg to his side; if the horse has been properly taught, it will start with the off fore-leg, followed by the off hind-leg. The position of the rider in cantering is all-important—the arms firm, the hands drawn well back, the waist bending slightly forward, the knees firm, the heels well down.

Both curb and snaffle should be used, holding the animal well in hand, the body following so completely the motion of the horse that they move as one sentient being.

When the animal is required to stop, he must do it instantaneously on the signal from his rider by drawing the reins quickly and firmly towards the body, which also inclines backwards. The time chosen should be as the fore-feet are about to touch the ground; it must not, however, be too suddenly done, or it might be dangerous.

The canter can, when desired, change quickly enough into a sharp gallop; and what exercise is there more delightful on a fresh bright morning in the midst of charming scenery?

A lady's horse should be free from vice, with a certain amount of spirit, and not sluggish; and the sooner she can establish friendly relations between it and herself the better. This noble beast is most sensitive to kindness; a timely caress is often the best encouragement it could possibly receive, and it never should be withheld when anything has been done worthy of praise. It will in time not only learn to look for it, but strive to deserve it.

A lady should rarely withhold the soothing influence of a caress ere mounting. She will find in time that her steed will bend down its head at her approach, anticipating the touch of a kindly hand; and the gift of some carrots when the ride is over will still further aid in establishing the *amitié cordiale*.

Few animals are more sensitive than a horse, or, truth to tell, more nervous. They are frightened at the sight of standing water, the flapping of clothes in the wind, or the shadows thrown by trees on the roadway. A word or two of encouragement will do much to banish all these needless alarms, while often in cases of real danger the pluck of the animal is beyond all praise. Left to their own discretion, many a horse has been known to swim when carried beyond his depth, and so bear his rider safe to land; and what so sure-footed as the steeds accustomed to mountains, bearing their burdens to the very verge of a precipice, yet never by any unforeseen accident making a false step?

Leaping has now to be considered. A leap, as learnt in

the riding-school, has to be taken, either standing or flying, over a bar, which falls as the horse touches it, should he not clear it; and it is raised by degrees as the difficulties are mastered.

The standing leap, which is the first undertaken, is the easiest. The horse is brought close to the bar, and, as it were, lifted over it. Meanwhile, the rider sits well back, the reins well in hand, so that no movement of the horse can pull her forward, the legs well pressed to the saddle.

In the flying leap, every care must be taken by the rider that she does not get thrown forward. The horse must be set into a gallop, and be induced to make a previous run of some fifteen yards before the leap, his head being guided towards the bar and the reins yielded to him; but it is a mistake, dictated by inexperience, to attempt to lift the horse: the rider, in fact, will have quite enough to do to attend to herself, and this is what is required of her. She must make her purchase of the saddle quite secure with the right knee, placing herself firmly in the centre of the saddle, her hands steady and down, her left foot well poised in the stirrup, the knee close against the crutch, her figure well up, looking straight before her.

To begin with: In attempting leaping the curb should be done away with, the snaffle only used, until knowledge and confidence have been acquired. Just as the horse rises the rider should bend back from the waist, never allowing the reins to be slack, but always feeling her power over the horse's mouth; the real truth being that the most important part of her task is that she should studiously preserve her own balance and maintain a firm grasp on the reins, and with the knees on the pommel, the figure well drawn up, ride up with confidence to the fence or bar, and keep the horse's head straight, the moment the horse rises throwing herself back. With the flying leap, the horse must be made to canter steadily ere he attempts the leap, and be duly caressed and encouraged when he has achieved it.

Ere the pupil attempts this outside the boundary of the riding-school, she must have learnt to leap using both reins, but must never use the curb only. Besides this, however, she should have mastered the difficulties of clearing an artificial brook of several widths. Her mode of leaping this will be precisely the same; the stride of the horse being greater. He must be made to go straight; great steadiness of seat and hand being essential for the rider, the elbows drawn some inches back, the hands touching the waist, to be thrown instantly forward as soon as the animal springs, giving him all the rein possible. If a hedge has to be cleared, the horse must not ride too fast at it; on the contrary, for a brook of any width he can hardly go too fast, thereby ensuring a wide stride.

Constant practice will be required to master these several difficulties, and a long course of riding-school practice should be indulged in before the rider attempts these feats out of doors; but she cannot put a satisfactory appearance in the hunting-field till she has mastered them, and they should not be attempted more than two or three times at each lesson. Moreover, some experience in leaping out of doors had better be acquired ere the *début* in the hunting-field; the horse, as well as its rider, being sure to be excited there.

There is another little matter, too, she will have to bestow her attention upon before this first appearance in the hunting-field—viz., the opening of gates. For this purpose her whip should be a Malacca hunting crop with a good crook. She must ride her horse up to the gate with its head in an oblique direction towards the opening, so that when by means of her whip, herself seated upright, she has raised the latch and has pressed the gate open, she induces the horse to pass through. Of course, this is when it opens from them; when towards them, the horse's head must be directed in a contrary direction as it is

pulled open; great care being taken that the rider never, by leaning unduly forward, runs the risk of losing her balance. When the opening is on the near side it must be manipulated with the left hand, the right holding the reins, and there must be no mistake as to the opening being really effected ere the horse is set in motion; few of them brook with patience a gate slamming in their faces, especially when hunting is going on.

"Accidents will happen in the best regulated families," saith the homely proverb; and though with a horse whose nature and points are thoroughly well known, and the rider well taught, there is but little chance of danger, still, to be armed at all points, it is desirable to know how to act in difficulties. They are none the more likely to occur because they are foreseen.

Some horses are apt to turn round suddenly and unexpectedly from positive restiveness, and generally on the off side. It is best not to try to prevent this; on the contrary, pull him smartly round, so that he completes the circle, and is on the spot where he started from; if he persists, this should be repeated three or four times, administering a firm blow with the whip the while, as likewise if the steed is determined to turn round a corner against the wishes of his rider. So also if he refuses to advance, oblige him to go backwards, until, tired of this, he goes as required. The same mode of proceeding might doubtless cure a runaway, save that it is attended by danger; but if otherwise, and a horse bent on galloping too fast were encouraged to increase his speed, the chances are he would soon tire and alter his mind. When run away with, the best course for the rider to pursue is to keep a firm, well-balanced seat, and remain cool and collected. Any show of nervousness on her part will act on the horse. She must on no account tug at the bridle; but while keeping a firm hold continue to guide him. In nine cases out of ten he will soon stop. Sawing at the reins will mostly stop him—viz., pulling first one rein and then another; but she must be on her guard lest her sudden stopping bring her on to the horse's neck; while, at the same time, she must be prepared should he fall from exhaustion.

Some horses will attempt to crush the rider's legs between a wall, tree, or any obstacle in his path; in this case, draw his head forcibly towards the object, which will have the effect of sending his body away.

THE TOILETTE.—XXII.

PLANTS AND THEIR PRODUCTS EMPLOYED IN PERFUMERY.

THE odoriferous principle or perfume of plants is secreted by small sacs or glands, which may be seen in a bay-leaf, on holding it up against the light; so, also, when the rind of the orange or lemon is cut across into thin slices, the glands are distinctly visible.

Sometimes the glands are found in the rind of the fruit, as in the orange and lemon; in other cases, in the leaves, for example, in the sage, mint, and thyme. Occasionally they are found in the bark, as in the case of cassia and cinnamon; or in the wood, like sandal-wood and rosewood; or in seeds, such as the nutmeg and carraway seeds.

The essential oil contained in these glands may be obtained by compressing them, or by subjecting them to heat, as during distillation, by which the walls of the sacs become broken, and allow their contents to escape.

The lavender plant (*Lavandula vera*), owing to the celebrity which English lavender-water and similar preparations have attained, is extensively cultivated in England, especially at Mitcham and Hitchin.

The reason of the preference given to the English preparation of lavender over that of the French would

appear to be that abroad they often employ another plant, the *Lavandula spica*, with the *Lavandula vera*, and thus injure its quality—a fault which is carefully avoided by the English distillers of this plant.

When cultivated for the purposes of the perfumer, the lavender is planted by slips, in the autumn. The plants are allowed to continue in the ground for three years, and are then pulled up, and fresh ones planted in their places. Lavender is also grown wild in France for the same purposes, but it is not equal to that cultivated in England.

The otto or essential oil of lavender is obtained from the plant by carefully distilling it with water. When the fluid that comes over is allowed to stand for a few hours, the essential oil collects upon its surface, and may be separated. The quantity yielded by half a hundred-weight is from fourteen to sixteen ounces. When from six to eight fluid ounces of this essential oil are dissolved in one gallon of rectified spirits of wine, it forms the *extrait*, extract, *esprit*, or essence of lavender. Lavender is chiefly used as a scent for the handkerchief, as it cannot be employed for oils or pomades since, by the rapidity with which it attracts oxygen from the air, it tends to turn them rancid. The perfume known as lavender-water consists of this oil dissolved in spirits of wine. The best lavender-water is prepared by distilling four ounces of English oil of lavender, with four pints of spirits of wine, and one pint of rose-water; when four pints have distilled over, the process is stopped.

The reason for distilling the fluid is that the perfume thus obtained is perfectly colourless, and does not change colour when kept. When this is not done, the lavender-water is of a yellowish tinge, which becomes darker by age. A good lavender-water, but inferior in scent and colour to the last, may be prepared by dissolving four ounces of oil of English lavender in three pints of spirits of wine, and then adding one pint of rose-water. As solutions of essential oils thus prepared without distillation are apt to be cloudy, it is necessary to filter them through unsized white blotting-paper, or filtering-paper. Occasionally a little dry carbonate of magnesia is added to the liquid before filtration, for the same purpose. The ordinary lavender-water sold in the shops is prepared only with the French essential oil, for the sake of its cheapness, while the very common kind is made with the oil distilled from the *Lavandula spica*, or spike lavender. The essential oil from this plant is known as oil of spike, and is employed in the preparation of cheap soaps and common perfumery.

The rose geranium (*Pelargonium odoratissimum*) yields an essential oil by distillation which is frequently employed to adulterate the otto of roses, owing to the similarity of its scent. As it is much cheaper than that of roses, it is often employed to give a rose-like scent to cheap perfumery. This plant is extensively grown in Spain, Algiers, and the south of France. The essential oil of the rose geranium is often adulterated with the oil obtained from the "ginger grass," but when pure is usually of a brownish tint. Four ounces of this essential oil added to a gallon of spirits of wine produces the extract or essence of rose geranium.

That well-known scent the oil of bergamot, is obtained by expression from the rind of the fruit of the *Citrus bergamia*, three ounces being usually obtained from a hundredweight of fruit. When recently expressed it is of a greenish yellow colour, and possesses a pleasant fragrant odour; but if long kept it becomes cloudy, deposits resinous matter, and acquires the smell of turpentine. This is especially the case if the vessel in which the oil was preserved was not sufficiently closed to prevent the access of air, and thus allows the oil to absorb oxygen. Light and a warm temperature also tend to decompose this oil; for this reason, it is best preserved in a cold and dark cellar. *Esprit*, *extrait*, or

extract of bergamot is prepared by dissolving eight ounces of essential oil in one gallon of rectified spirits of wine.

Bergamot is much used in perfumery, for scenting hair-oil, pomades, and cheap perfumes for the handkerchief. It is sometimes added to lavender-water; but it injures the perfume, and causes it to discolour when long kept.

The *Citrus amantium*, the tree which gives us that well-known fruit the orange, also furnishes a perfume. When the rind of the common orange is placed beneath a powerful press, an essential oil is expressed, known as the oil of Portugal. The same oil may be obtained, but of inferior quality, by distilling the rind with water, as directed for oil of lavender.

The bigarrade, or bitter orange tree (*Citrus bigarradia*), also, from the number of perfumes it furnishes, is most valuable for perfumery. From the rind an essential oil is expressed, known as the oil of bigarrade. When the leaves are distilled, they also yield an essential oil; while the orange blossoms treated in the same way give up the oil of neroli, so much employed in the manufacture of eau de Cologne. This oil is supposed to have derived its name of neroli from the Roman Emperor Nero.

The flowers of the hundred-leaved rose (*Rosa centifolia*) are much employed as a perfume. This plant is extensively cultivated in Turkey for the otto, or attar, the essential oil which roses yield when distilled with water. It is also cultivated in the south of France for similar purposes. It is found that, for the purposes of the perfumer, the flowers require to be gathered before the sun rises, otherwise half the perfume will be lost. May is the usual season for gathering them, and each tree generally yields about twelve ounces. Several methods are employed to obtain the perfume from these flowers. Sometimes they place the freshly-gathered flowers between plates or glass frames, covered on the inside with fine lard. The perfume continues to be given out from the flower for some time after it is gathered, and becomes absorbed by the fat, to which it imparts its fragrant qualities. After a certain time the spent flowers are removed, and fresh ones placed in the frames; the surface of the lard being indented with a knife every time the flowers are changed, to allow a fresh surface for the absorption of the perfume. This process is repeated continually, as long as the flowers remain in season. It is found that about ten pounds of rose-leaves are required to each pound of fat. This method of obtaining the perfume from the flowers is called "enfleurage."

Sometimes a different process, that of maceration in warm fat, is employed. For this purpose a quantity of the picked roses is put into a vessel containing the fat, and which is kept hot in a water bath. After twenty-four hours the fat is strained, and fresh roses put in; the process being continued until the fat is sufficiently perfumed.

The perfumed fat thus obtained, which is known as rose pomade, is then cut into pieces and placed in rectified spirits of wine, which removes the essential oil, and becomes converted into the essence of roses, sometimes called the *extrait* or extract; eight parts of the scented fat being required for each gallon of lard. When the oil is entirely dissolved, the spirit is poured off, and preserved very carefully in well-closed bottles. As the fat still contains some of the scented spirit, the vessel containing it is placed in warm water to melt it; and then, as it cools, a further portion of spirit will be set free, and is then to be poured off. The fat, which is now known as washed pomade, still retains sufficient perfume to make it useful for the preparation of pomatums; but, if it is wished, the essential oil still retained may be removed by a further maceration in spirits of wine.

Sometimes oil is employed for the extraction of the

perfume, instead of fat, the flowers being either laid on cloth moistened with olive oil, or simmered in it; the otto of roses being extracted from the perfumed oil by spirits of wine, in the same manner as when fat was employed.

Extract of roses (known as the *esprit de rose triple*), is sometimes made by dissolving three drachms of the otto of roses in one pint of rectified spirit. This preparation, however, does not possess the fragrance possessed by the extract prepared in the way previously mentioned from the fresh roses.

Roses are cultivated in England for the preparation of perfumery, although their scent is not equal to those grown under a warmer sun. The flowers are collected in June and July, and are mixed as soon as possible with one part of powdered salt to every six parts of flowers, and then packed in casks. By the action of the salt, the water present in the flowers is abstracted, and they are converted into a briny mass, which will preserve the fragrance of the roses for a considerable time. Care must be taken when the roses are gathered, and are waiting to be salted, that they are not laid in heaps, but spread out on a level cold floor, otherwise they would rapidly attract oxygen, and become decomposed.

When six pounds of pickled roses are put in a distilling apparatus with one gallon and a quarter of water, and one gallon of fluid distilled, the liquid is known as double distilled rose-water.

Patchouli, the leaves of the *Pogastermon patchouli*, are employed in the preparation of some perfumes. In appearance they are not unlike those of sage; they are of a dark brown colour, and possess a strong odour of a peculiar character, which has been described by some writers as musty, and by others as resembling old coats. These leaves are often sewn up in bags, and placed in drawers and closets to keep moths away. This plant is grown in China and India, and in the latter country it is employed to scent Indian shawls. The black pigment prepared in China, and known as Indian ink, is also scented with this substance.

When a hundredweight of patchouli leaves is distilled with water, about twenty-eight ounces of the essential oil are obtained. The essence of patchouli is prepared from this by dissolving one ounce and a quarter in one gallon of rectified spirits of wine, a quarter of an ounce of the otto of roses being added.

The well-known fruit the lemon (*Citrus limonium*) contains an essential oil much used in the manufacture of perfumes. When the fruit is compressed, the oil thus obtained is known as lemon yest, and is of finer and more fruit-like odour than when it is obtained by the distillation of the rind with water. When the otto of lemon is obtained by the latter process it is known as the essence of lemons. Much of this oil met with England is imported from Messina, where the lemon fruit is extensively grown. This scent is much employed for various purposes in perfumery; but it should not be used for pomatums, as, from the readiness with which it combines with oxygen, it tends to render fats rancid. Owing to its proneness to undergo decomposition, it should be carefully preserved from the action of air, light, and heat, but when it has become injured by these causes, it may be improved by shaking it up in a bottle with warm water. The scent enters into the composition of many well-known perfumes, among others, that of the eau de Cologne. It may be easily detected in many scents of this description, by agitating them with a strong solution of ammonia, which removes the smell from most other essential oils but does not destroy this one.

When two drachms of the essential oil of lemons are added to five ounces of rectified spirits of wine, it forms the extract of lemons, the oil obtained from the fruit by expression being the best adapted for this purpose.

HOUSEHOLD AMUSEMENTS.—XXXIII.

MODEL SHIP-BUILDING.

WE have determined to give a few papers to assist those of our readers who would wish to devote their leisure hours to the interesting and instructive recreation of model ship-building, by supplying clear and simple instructions in writing and in diagrams, of the easiest method by which the outlines of the body or hull of a model may be developed with unerring certainty, and the simplest mode of constructing and putting together the various parts; and, further to assist the skilful artisan and the more advanced student, we shall supply every detail of the external arrangements and fittings, together with the spars and rigging, to render the whole thoroughly perfect. But as this would be hampering the beginner with difficulties beyond the reach of his capabilities, we purpose to point out as we proceed many modifications and omissions that may be made in the details without affecting the general appearance of the model.

The lines of a vessel suitable for a model, and the proper mode of constructing it, have hitherto been almost unattainable; and it is our object to supply the deficiency, and to represent the finest specimens of naval architecture. We have no doubt that the advantages offered by our method will attract a large amount of attention, and recommend the model for adoption, and, we hope, prevent the further waste of time and annoyance, that must ever attend the making of such unshapable models as are usually to be met with.

The whole beauty of a model ship depends upon its exact and symmetrical proportion, and as nothing is so desirable as beauty, and upon which the sailing powers so much depend, no pains should be spared to produce that effect.

For a boy to build a model ship is no easy task; it requires much thought and mechanical aptitude, combined with care and patience, to achieve success. It therefore tends to elevate while it interests, and to impart instruction with pleasure; and, taking this view, we the more strongly recommend boys to test their capabilities by making their own models, and to compete with their companions for excellence of work and perfect execution of their task. And then comes the pleasing ceremony of christening the tiny bark, and launching it in its proper element, and the excitement of watching it scud before the wind, and contemplating with honest pride the offspring of his own perseverance and handiwork. We are sure no boy would value a model bought for guineas half so much as one made by his own hands.

There is no department of science that has of late years made greater progress than shipbuilding; and to design a perfect ship is a problem of the highest order, requiring the combination of profound practical skill and great mathematical attainments; and whilst every other branch

of mechanical science may be said to be overwhelmed by initiatory works, it makes the fact the more remarkable that so very few rudimentary and elementary works, the production of British naval architects, are to be found amongst the standard works in our libraries; and, from the mathematical knowledge required for their perusal, the technicalities and the complicated details employed in the construction of ships, they are of little practical utility to the youthful shipwright for constructing a model.

Ships for the merchant service are built of various moulds, depending upon the particular trade in which they are intended to be employed. Some are constructed with a view to carrying a large cargo, and are broad, and what is technically termed "bluff-headed," whilst others are designed for fast sailing. Of this class there are perhaps no finer examples afloat than those employed in the China tea trade. Every year some five or six of these ships engage in a race across the ocean, leaving China

together; and it is so well contested that sometimes the last ship has been only one or two days behind the arrival of the first of her competitors in the Thames.

We will next refer to the fast-sailing pleasure-yachts; that is, the cutter-yacht with one mast, and the schooner-yacht having two masts. These are perfect pictures of simplicity and neatness, and credit-

able examples of the efficiency attained by our naval architects; and, considering the care, the money, and the skill employed in the experimental construction of these fine vessels, it is not to be wondered that they should reserve their personal interest by withholding the publication of their designs. Nevertheless, it may be said, and perhaps truly, that it would be mutually advantageous if they were to communicate more freely their several experiences, and greatly facilitate the achievement of much greater excellence, besides considerably adding to our stock of knowledge in this important branch of science.

It may not be out of place to remark that until 1870 the only two foreign vessels that challenged our yachts in the Royal Yacht Squadron Regattas carried off the prizes. These were the American yachts *America* and *Sappho*—the former winning the prize in 1851, and the latter in 1870—and the success of these fine yachts is said to have been entirely due to their superior build and rig affording great sailing powers. By the success attending these contests the Americans may claim something like pre-eminence in this class of ship-building. It is not our purpose to make comments, but simply to state facts which prove that our yachts are not so perfect as they might be.

Having concluded our preliminary remarks, we shall proceed to describe—

How to Build a Model of a 25-ton Yacht; and in doing so we shall endeavour to illustrate in concise and

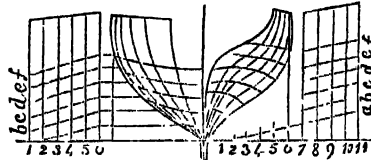


Fig. 3.—BODY PLAN.

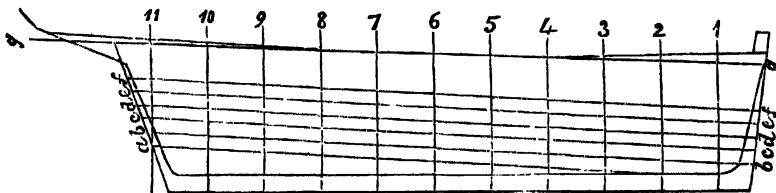
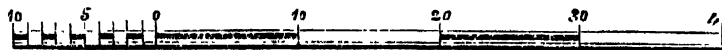


Fig. 1.—SHEER PLAN.



Fig. 2.—HALF-BREADTH PLAN.



SCALE OF FEET.

Intelligible language, and where technicalities occur we shall explain them; but it is our intention to avoid them so far as the subject will allow.

The first thing to be done is to determine the size of the model. Now a scale of $\frac{3}{4}$ ths of an inch to a foot is a very convenient size, and less difficult to make than one of smaller dimensions. The length of the yacht selected is 54 feet; this, reduced to a $\frac{3}{4}$ -inch scale, is 3 feet $4\frac{1}{2}$ inches. Having decided upon the scale, proceed to make accurate drawings. This may appear a difficult task, but if care is taken in very accurately setting off the dimensions and putting in the lines in strict accord with our instructions and diagrams, everything will go right, and any error detected before the work is put into practice.

To properly delineate the dimensions, three drawings are required, and these are mutually dependent on each other. They are severally named the sheer plan, half-breadth plan, and body plan. The sheer plan is the longitudinal section through the centre from stem to stern; on this plan the dimensions are given for length and height. The half-breadth plan represents the horizontal section through the length of the body at the widest part. The body plan is the vertical section at the widest part athwartship, and all the other sections are delineated within it. The dimensions mentioned below are those of the yacht, and must be reduced to the three-quarters of an inch scale.

The first drawing will be the sheer plan (Fig. 1). First draw a horizontal line for the bottom of the rabbet in the keel, this is the base line from which are set off all the vertical heights; next set off the eleven vertical lines of the cross sections, and number them from 1 to 11 consecutively; No. 1 being next to the stern. The extreme vertical lines, 1 and 11, are 41 feet and a $\frac{1}{2}$ inch apart. Divide this length into ten equal spaces, each of which is 4 feet $1\frac{1}{2}$ inch. Then proceed to lay down the lines for the horizontal sections. Set off 2 feet 3 inches from the rabbet on No. 10, and draw a line from this point to the bottom of rabbet on No. 2. From this set off parallel thereto 5 lines 12 inches apart (these are termed the water-lines), and mark them *a, b, c, d, e, and f*—*e* being the line of deepest immersion. Set up 8 feet 1 inch from the rabbet on No. 1 and 9 feet 4 inches from the rabbet on No. 10; draw a straight line through these points and mark it *g*; this is the deck-line at the lowest point amidship, and from this line the rise of the deck fore and aft is set off. Set off on this line 3 feet 4 inches from No. 1, and on the rabbet line set off 2 feet 4 inches, draw a line through these points, and this will give the rake of the stem. In like manner set off 6 feet 6 inches from No. 10, and on the rabbet line 3 feet 6 inches, and this will determine the rake of the stern-post, and also determine the length of the keel on the rabbet line, which is 42 feet $9\frac{1}{2}$ inches.

The next drawing is the half-breadth plan, Fig. 2. Draw a centre line from stem to stern, and bring down from the sheer plan the centre lines of the cross sections. Mark off 6 feet 3 inches the half-breadth on No. 6 or midship. Now leave this for awhile and proceed to lay down the body plan, Fig. 3. Draw the base or rabbet line, and set up the vertical centre line, then on each side of this line set off 6 feet 3 inches, and through these points set up two vertical lines, and between these will be 12 feet 6 inches, the midship breadth; set up the other vertical lines exactly 12 inches apart, as represented in Fig. 3, and mark them in consecutive numbers from 1 to 11, as on the sheer plan and half-breadth plan. Set off 2 feet 3 inches from the rabbet on No. 10, and from this point draw a straight line to the bottom of No. 2, and from this diagonal line set off the water-lines parallel therewith, and letter them *a, b, c, d, e, and f*, as in the sheer plan. The heights of the water-lines being thus determined, proceed to transfer the vertical lines 1, 2, 3, 4, 5, to the opposite side of the section, as represented in Fig. 3. Of course care must be taken that the diagonal lines are put in at the same angle, and that the

bottom line, *a*, starts from the rabbet line at No. 2. The points of intersection of the diagonal lines, with the vertical lines on the body plan, will correspond with the heights descriptive of the same points on the sheer plan; and the points of the breadths on the cross sections are co-equal with the same points on the half-breadth plan.

To somewhat simplify our instructions to our readers, and to ensure accuracy and certainty in delineating the curves of the boundaries of the various sections in the half-breadth plan and the body-plan, we shall introduce the following table of dimensions:—

	1	2	3	4	5	6	7	8	9	10	11
<i>a</i>	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
<i>b</i>	0 5	0 11	0 6	0 11	1 4	1 7	1 7	1 5	1 1	0 9	0 2
<i>c</i>	0 5	0 11	0 6	0 11	1 4	1 7	1 7	1 5	1 1	0 9	0 2
<i>d</i>	1 0	1 8	2 7	3 6	4 0	4 5	4 4	3 10	3 1	2 10	0 6
<i>e</i>	1 0	1 8	2 7	3 6	4 0	4 5	4 4	3 10	3 1	2 10	0 6
<i>f</i>	1 4	2 11	4 2	5 2	5 8	6 0	5 10	5 6	4 11	3 9	1 6
<i>g</i>	1 7	3 4	4 9	5 8	6 6	6 2	5 11	5 5	4 8	2 10	0 4
<i>x</i>	2 3	4 2	5 5	6 0	6 2	6 3	6 2	6 0	5 9	5 4	4 10

The table is composed of eleven columns of dimensions, and the numbers at the head of each have reference to corresponding numbers on the three plans. The letters in the margin represent the heights in the half-breadth and body plan. We shall better explain the use of the table by setting out the boundary line of the midship section on the body plan (Fig. 3). The dimensions for that section are given in column No. 6. First project inwards the heights indicated on the vertical line No. 6, and set off from the centre line, 1 foot 7 $\frac{1}{2}$ inches, and make a mark on the projected line *a*, 3 feet 2 inches on *b*, 4 feet 5 $\frac{1}{2}$ inches on *c*, 5 feet 5 inches on *d*, 6 feet on *e*, 6 feet 2 $\frac{1}{2}$ inches on *f*, and 6 feet 3 inches on *g*. Draw a line through these points and the curve will be developed. Proceed in like manner to draw in the other vertical sections. These dimensions also determine the breadth at the corresponding points on the half-breadth plan, and these breadths can now be set off.

With the aid of the above dimensions the symmetrical proportions of the model will be obtained with ease and certainty, without the help of any previous knowledge of the theory and practice of shipbuilding. The details of construction will be given in another number.

HIGHWAY LAW.

I.

SCARCELY any one who walks along the streets of a town, or the lanes of the country, we venture to say, ever deigns to cast a thought upon the question of how those streets are kept in repair, or those lanes maintained. Highway law, however, is a subject of very great importance and difficulty, and one of which most people know little or nothing. For the benefit, then, of such of our readers who would care to know more concerning the roads they daily travel, we have collected the chief points of the law relating to them, and which we hope will prove of service in time of need.

In the first place, all roads open to the public are termed highways, and they are of three kinds:—1. Footways; 2. Bridle-roads; 3. Roads for carriages, horses, and men, which last division includes turnpikes, parish roads, railways, navigable rivers, and bridges. Under the second head come towing-paths and driftways, or roads for driving cattle. A footway is a highway if both its termini are places of public resort; it can pass through private property, but must both begin and end in places to which the public are admitted; and a highway can also exist where there is no thoroughfare; for instance, a courtyard with only one outlet is a highway to all intents and purposes if open to the public. But

of whatever nature the highway is, it must originate either from custom, usage, dedication, or Act of Parliament. A highway cannot be bought, for there exists no purchasing power in the public, nor can the parish sell a right of way. Custom to use a road on the part of the public must be proved to have existed from time immemorial.

- Formerly the question very often arose as to what constituted a dedication to the public of a road, and it was generally held, that where the public had a free and uninterrupted passage all the year round, for four or five years consecutively, a dedication on the part of the owner of the way was implied; there must have been at the same time, however, a clear intention on his part to dedicate; and a single act of interruption on his part was of much more weight upon the question of intention than many acts of enjoyment on the part of the public.
- Sometimes, to show that no dedication was intended, the highway used to be closed for one day in each year, and a bar was placed across the road to signify to the public
- the owner's intention of keeping the way to himself. Such bars can be seen in many parts of London now. Dedication, however, is much simplified by an Act of Parliament passed in the reign of William IV., generally known as the Highway Act, by which it is enacted that any one wishing to dedicate a road to the public must give three months' notice in writing to the surveyor of the parish of his intention to do so; this functionary must then call a vestry meeting, who will decide whether the road is of such public utility as to justify them in accepting it. If they decide to accept the dedication, the surveyor and justices of the peace are required to view the road, and certify that it is made in conformity with the Act. After these preliminaries have been complied with, and the public have used the road, and the owner has kept it in repair for one year, the dedication is complete, and the road must be for ever afterwards kept in repair by the parish in which it is situated. The Act requires that the road shall be well and firmly built, of good materials, and not less than twenty or more than thirty feet wide.

If the road, on the other hand, be not made in conformity with the Act, or deemed to be not of sufficient utility to justify the parish in accepting it, the dedication may be refused, and at the instance of the surveyor any one justice shall summons the party proposing to dedicate the road before the justices at the next special sessions for the highways of that district, in order that the case may be argued out before them; and an appeal from their decision lies to the quarter sessions. In places where the local board of health usurps the office of surveyor, as in towns, where the streets are under the management of such board, and not of the parish, the dedication of a road may be refused, if it be not made to the satisfaction of the board.

When a road is created by Act of Parliament, it is termed a "turnpike." It is a road on which gates can be erected for the purpose of taking toll, and refusing permission to pass to all persons who refuse to pay. The funds arising from these tolls are vested in trustees for the public, and are to be expended in maintaining the road; and should they prove insufficient, the parish in which they are situated can grant them a sum out of the highway rate, to enable them to keep the turnpikes in proper repair.

Having described the different classes under which highways are divided, let us now see who are liable for repairing them. We have seen that turnpikes are repairable by their trustees, who are bound to apply the sums they collect by their tolls to such end, therefore nothing further need be said about them. But with respect to common highways the case is different. The parish in which a highway is situated is bound to repair it, unless it can throw the onus of doing so upon some

other body or person. So the owner of the soil is not bound to repair his road if he has dedicated it to the public, and the parish have accepted the dedication; but he is bound to do so by prescription, by reason of his tenure, or enclosing his lands.

Prescription is a title acquired by use and time, and allowed by law, and a title so obtained is good, though no particular reason can be assigned for it. The owner of the soil is bound to repair by reason of his tenure, if there be a covenant in the deed under which he holds his lands, by which he is compelled to keep the roads on his estate in good repair, and he must also repair if he thinks fit to enclose the lands through which the roads pass, which before were not so enclosed. Bridges stand in the same light with regard to the county in which they are situated as roads do in respect to their several parishes. So a county is liable for the repairs of its bridges, unless there be a usage, custom, prescription, or statute to the contrary. The fact of a bridge being of great public benefit, and the perpetual use of it by the public, is sufficient to charge the county with its repair, and this though it be built by a private individual. But if it be built for his own private convenience or benefit—as, for instance, across a stream to his mill—no such obligation is cast upon the county, even though the public are in the habit of using it. On whatever persons the obligation falls, they are bound not only to repair the bridge itself, but 300 feet of the road on each side of it; and they cannot divest themselves of the liability by altering the bridge; for instance, by making a foot bridge into one for carriages. And the county, too, are liable to repair bridges built by trustees under a turnpike act, if there is no special provision made to the contrary—even though the trustees are enabled to raise tolls for the support of the roads. Sometimes it happens that magnanimous persons build bridges and present them to the county, in the same way that roads are dedicated to the public. These the county may accept if they deem them of sufficient public advantage; should it, however, be constructed imperfectly, or unnecessarily built, the county can reject it, and, in order to do so, they must indict it as a nuisance. Furthermore, no bridge that is not erected in a substantial manner, and to the satisfaction of the county surveyor, can be deemed a county bridge.

Sometimes it happens that no one is liable for the repair of a road; as, for instance, in the case of a private road, which the owner is not bound to repair either by prescription, by reason of his tenure, or by reason of enclosure. Again, in the case of public highways, the public—that is, the parish—are bound to keep the road itself in repair, but they are not indictable if they allow the waste land on either side of it between the original road and any buildings that may have been erected, to remain in a neglected state.

Having thus discovered the different parties who are liable for the repairs of highways, and also what constitutes their several liabilities, the next thing to be done is to find out the steps that must be taken should the duty of repairing be neglected.

GOLD SPANGLES.—The following is a simple method of making gold spangles of great brilliancy and beauty:—Take a glass bottle and brush it over with water in which a little isinglass has been dissolved by boiling. Gild this, while still wet, with gold leaf, and burnish by rubbing it with a little cotton wool. Over the gold lay a coat of copal varnish (in which two or three drops of oil have been mixed, to prevent its drying too quickly), and place the bottle in a cool cellar for two days. The varnish and gold may then be chipped off with a knife, and will form small glittering flakes, which may be used for a variety of purposes.

CHILDREN'S DRESS.—XVIII.

CLOTHING FOR A BOY OF EIGHT YEARS, INCLUDING KNICKERBOCKER SUIT (continued from p. 10).

The Waistcoat.—Cut the fronts of the waistcoat of the material by Fig. 5. Also cut the same in the twill lining. Cut false pieces of the material by the dotted lines in Fig. 5, two pieces to each front. Tack the lining to the front, having laid the false pieces on the front of the waistcoat, and run them to it near the edge. Untack, turn them, and tack again on the wrong side, and then stitch the edges. Or tack the false pieces first over the lining on the wrong side, and bind the edges with binding. Fig. 2 is the pocket. Make it of lining or material, and stitch it to the waistcoat before tacking on the lining at all. The under part is stitched on the wrong side. When the waistcoat is finished, a piece like Fig. 3 is stitched over the lower part of the mouth of the pocket to cover the opening.

Cut the back of double lining, or a piece of jean and lining, by Fig. 1. Stitch the side and shoulder seams of the upper part of the back to the fronts. Turn down and hem the lining over the fronts. Turn in the edges of the top and neck of the backs, and run them together. Turn in the edges of the armholes, and run them together. Stitch on two straps behind, or two strings, to tie in the waistcoat to the size of the figure, but let it be easy.

Measure of the front:—F to N (Fig. 5), the length, fourteen and a half inches; A to B, the length, eleven and a half inches. The width, G to A, six and a half inches; I to H, five and a half inches; C to J, seven and a half inches; L to K, six and three-quarter inches; D to B, ditto; M to E, seven and a half inches. The shoulder, four inches. Under the arms, seven and a half inches.

Measure of the back:—The length, O to P (Fig. 1), thirteen and a half inches. The shoulder and under the arm, the same as the front. The width, U to T, four and a half inches; W to Q, six and a half inches; X to V, six and three-quarter inches; P to R, seven inches. Only half the back is given in the diagram and in the measurement; but the two pieces of the back are cut in one from double material. The pocket (Fig. 2) is four inches wide at the mouth, and three and three-quarter inches deep.

The Jacket.—This is cut without a seam, from the diagram (Fig. 6), and sits excellently. It is lined with black alpaca. The lining is tacked to the jacket. A facing is cut of the material by the dotted line, and also run on. The shoulder seams of the jacket are then stitched together, turning back the lining, which is laid down and tacked on the back of the shoulder, the front

laid over it, turned in, and hemmed down. The edge is now bound all round with galloon to match its colour. A single button fastens it at the top. Before tacking on the lining, in the first instance, and as soon as the material is cut out, make a pocket as wide and twice as deep as Fig. 2, and stitch it on, with a piece like Fig. 3 over it. The slit for the pocket is cut from N to O in Fig. 16.

The measure is:—The length, R to S, sixteen inches. The width, Q to P, thirty inches; F to D, twenty-nine inches. The shoulders are formed by joining A I to G J, and L M to B K.

The sleeve (Fig. 4) is cut in two pieces, and so is the

lining, which is twill. Trim the upper side of the sleeve with braid, like a cuff; then stitch the sleeves together. Run the lining separate. Run it to the cuff of the sleeve, on the wrong side. Turn the lining in. Tack it an inch from the top. Stitch the sleeve to the jacket. Turn down the lining, and hem it over the join.

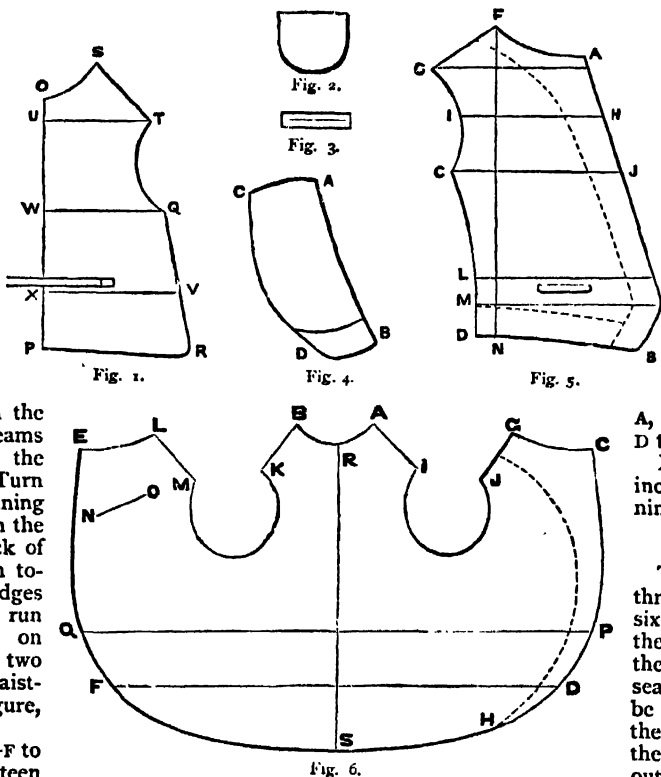
Measure of the sleeve:—From A to B, eleven inches; C to D, fourteen inches; C to A, five and a half inches; D to B, four inches.

Measure of pocket:—Four inches wide at the mouth, nine inches long.

HOLLAND PINAFORE.

Take two widths, twenty-three inches long, and twenty-six wide, and cut off to fit the shoulders, allowing for the centre pleat and the side seams, and letting the whole be very loose and full. If the material is wide enough, the three pieces may be taken out of a breadth, as in Fig. 7, or at least a back and

one front, which in a set of pinafores will be a saving. Or only partly gore the sides, and set in the neck full—without sloping the shoulders (see Fig. 8). If the neck is plain, cut open the shoulders, and put in a shoulder-piece, piped and lined as usual. Join the sides with mantua-maker's seams. Open the front from A to E (Fig. 9). Make an inch-wide hem, and continue the pleat all down the front (A to B, Fig. 9). Put buttons all down it; or really open it all down, and button it. It is easier to iron this way. Round the lower hem (F to G) at the back, and slope it away an inch wider in front. Make a wide hem. Hollow out the neck, and put on a band. If the neck is full, gather it. Stitch it to the band in the way shown in Fig. 8, which supposes you have the wrong side of the pinafore uppermost. Then turn down the band over the gathers, and hem it neatly, so as not to show on the right side. Cut the sleeve by Fig. 10 in one piece. Join and set into the pinafore with a mantua-maker's seam. Put a little cuff at the wrist, to slip on. It may be about two inches wide (double). Boys' pinafores are not trimmed; a belt is worn with them. White, polished, plain bone buttons are generally used for the front.



Measurement.—From A to D, in front, which is lower at the neck, twenty-one inches. At the back, A to B, twenty-three inches; L to F, fourteen and a half inches; F to G, the width, twenty-six inches; L to K, fourteen inches. The shoulders (H to I) five inches; C to E, ten inches. Round the neck, fourteen inches; round the armhole, eleven inches; the wrist, four and a half inches. The sleeve (Fig. 10), A to B, thirteen inches; C to D, eleven inches; F to E, an inch difference.

The wrists and neck are piped. The buttons are sewn on the left side, and the button-holes on the right. The

and may be of cotton, thread, or silk, according to circumstances. With a black velvet, or velveteen suit, black stockings are worn, and for best it is handsome to choose these of silk. Thin silk, especially black, is not economical; it gives so soon, and the saving in the first outlay proves a mistake in the end, when the article is found to fall to pieces very soon. Coloured stockings are very troublesome—if cheap ones, they drop into holes almost at once—even expensive ones drop and run a great deal. There is a reason for this beyond any effect the dye may have. White stockings, when they come off the loom, are held

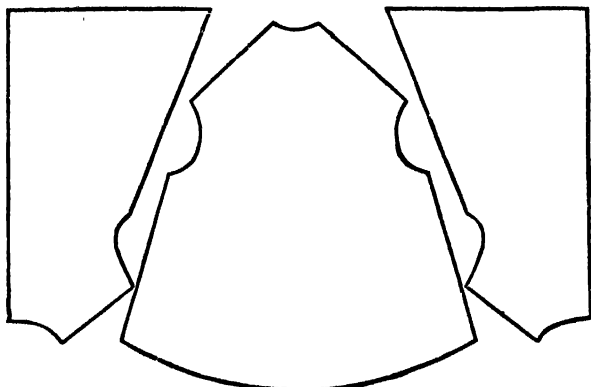


Fig. 7.

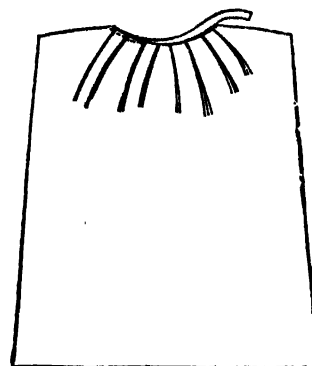


Fig. 8.

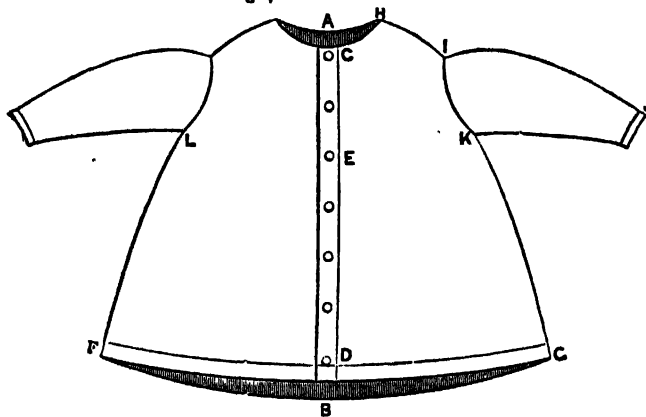


Fig. 9.

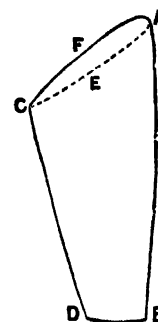


Fig. 10.

shoulders may be merely sloped, and joined with a mantua-maker's seam, which gives less work. Some persons for economy make boys' pinafores of dark print or brown "derry," as a strong wide-width linen is called. Dark gingham is equally applicable. These articles do not look very well in point of appearance; that is, not so well as brown holland, but they cost less, and the linen or gingham especially is strong. Derry can be purchased at from four or five pence a yard, and gingham at about eightpence. If print is used, violet only should be selected, as it stands boiling so much better than any other colour; and it must not be forgotten how dirty boys make their clothes, and what hard rubbing, scrubbing, and boiling their pinafores will be sure to require.

BOYS' HOSE.

At this age boys wear stockings, if yet in knickerbockers, but as soon as trousers are worn, socks will be sufficient, and are a great saving of time and mending. It is very troublesome to keep boys in knickerbockers tidy in the hose. These are coloured, of worsted in the winter, and generally of cotton in the summer. For dress occasions, white are sometimes worn, especially by little boys,

up between the light and the searcher's eyes, and every dropped stitch detected and taken up. In coloured manufactures this is either not done at all, or the colour renders the detection of any irregularity in the weaving uncertain. It is in the best taste to choose hose to match the colour of the suit, or dark brown, or grey. Some persons certainly prefer scarlet; they are warmer, and wash admirably, but wet will stain them, such as mud or splashes. All remarkable, brilliant, and unusual colours, such as magenta and coal-tar violets, which are of striking bright shade, should be avoided. They are not only out of taste, but the dye is sometimes baneful. A dark, quiet violet is not open to the same objection. Striped stockings of two colours wear badly—they are apt to drop in holes where the threads of the stripes join. The same may be said of checks, which are also in bad taste. Stripes have also the effect of making the legs look thinner, which is seldom an advantage in appearance.

The best way to darn the feet of coloured hose is with ordinary single Berlin wool, when they get at all old; it fills up the holes, is warm, and very soft. On the knees and legs it cannot so well be used, because it is bulky-looking.

THE HOUSEHOLD MECHANIC.—XLIX.

SOLDERING.

THE art of uniting two or more pieces of metal by means of solder is one of the most useful to the household mechanic, especially if he resides in the country or in an out-of-the-way district, where the visits of the travelling tinman are few and far between. It often happens that a broken gas or water pipe throws the whole household into disorder until the defect can be removed; and still more often that a saucepan or kettle is thrown away on account of some trifling leak, which could be stopped in two minutes by means of the soldering-iron. These are important matters in the household economy, and the time spent in learning how to mend "a kettle, a pot, or a pan" will probably never be regretted.

In a former paper in these pages, on the "Construction of Fountains" (page 97, vol. ii.), we gave some hints on soldering and on the tools and materials required. We need only, therefore, briefly mention them here, and further extend the uses to which they may be applied.

We will first describe the method of soldering tin, as it is in this metal that the amateur will most work. The tools required for this purpose are few and simple, and a complete set need not cost more than two shillings or half-a-crown. A large soldering-iron, or "copper-bit," may be purchased for one and sixpence. A piece of sal ammoniac and a piece of common resin for twopence; a file (flat, of course) sixpence; and quite sufficient solder for a beginner may be had for fourpence. With these, and an old knife for scraping the metal clean, the tyro may consider himself fully equipped and ready for work. We will suppose that the first job requiring attention is the repairing of a kettle or saucepan, through the bottom of which a small hole has been made. The first thing will be to ascertain the extent of the damage. Round the place which has been burned there will probably be several small holes, which are not to be seen until the black incrustation has been removed. In this case the best thing will be to place a patch of sound new tin over the damaged portion. A piece of new metal, of the requisite size, should therefore be procured (a sheet of tin may be obtained at any ironmonger's), and cut of such a shape as to include all the weak parts of the vessel to be repaired. The outline of the patch should then be marked, and the old metal scraped perfectly clean for a space of about three-eighths of an inch on either side of it. The first thing will be to tin the soldering-iron or copper-bit. Having been inserted in a clear fire until it is hot (but not red-hot) this should be cleaned by means of the file. If it now be placed upon the sal ammoniac, and the bar of solder brought into contact with it, it will be found that the melted solder will flow over its surface, and it will present a bright appearance, very much like that of the tinned plate. When this is effected, it will be ready for use, and may be replaced in the fire until the other parts of the work are prepared, taking care not to make it too hot. The patch of new tinned plate may now be placed in its proper position, and being cleaned, and a little of the common resin being dusted over the proposed joint, a drop or two of solder should be melted from the bar and dropped upon the edges which are to be united. These drops should now be drawn along the edges until the melted solder flows in a perfectly even and level stream, which unites the parts quite firmly, taking the greatest care to avoid air-bubbles, or any defective flowing of the molten metal. If this be carefully done, the work may be considered complete; and after being tested by filling with water, the vessel may be handed back for use in the house. In this case we have supposed that the original metal has been partially destroyed, but a case of far more frequent occurrence is that in

which parts have become unsoldered; as, for instance, when the spout or handle of the vessel is melted off. This is a defect easily repaired. The edges of the separated parts should be perfectly cleaned, as before described, and sprinkled with the powdered resin, when the molten solder will easily be made to run round the joint at the point of the soldering-iron. When the defect is simply a small hole, it may often be stopped by means of a drop of molten solder spread round or over it, but the greatest care must be taken to perfectly clean the old metal for some distance round the orifice.

Besides tin, lead or pewter may be soldered, as we have above described, that is to say, with soft solder and powdered resin. In the articles on "Fountains," we have given full details for the joining of leaden pipes; but in the case of those used for gas, more delicate manipulation and smaller tools are required, and we will give a few practical hints upon this branch of work.

Skilled gasfitters mostly make the requisite joints in the pipes by the aid of the blowpipe; but to do this well requires much more skill and practice than the amateur is likely to have or to attain. The work may be equally well executed with the ordinary copper-bit, if skilfully used, and for our own work we prefer it to the blowpipe. A small and rather pointed soldering-iron should be selected; and for this sort of work it must be kept in the best possible order—the edges sharp and square, and the whole surface perfectly tinned. In soldering tin, the iron may be made very hot without much injury to the work; but it should be remembered that lead and the composite metal used for gas-pipes are very much more easily melted; so that considerable care is required, in order to avoid melting it during the soldering process. A softer and more easily melted solder is prepared for this class of work in fine, thin sticks, and is known as "gasfitters' solder." A stick or two of this should be provided, as the ordinary quality is much more difficult to work. When the joint is to be made, one end of the pipe should be slightly opened, and the part which is to be joined to it a little compressed; so that one may just fit into the other, and leave a narrow ledge upon which the solder may rest. This ledge should now have a little powdered resin placed upon it; and when the soldering-iron is just hot enough to melt the solder freely, a couple of drops may be allowed to fall upon the joint. It will now be found that, if the point of the iron be applied, the molten solder will follow it round the pipe in a perfectly even stream, uniting the two pieces of metal in the most complete manner. Practically, the work is now finished, and, if neatly done, no trimming will be required; but if it should be at all ragged or irregular, a file will remove this defect in a few minutes.

The same process of soldering is required for securing the gas-pipe to those of the taps and fittings which are of brass. The ends of these are mostly tinned ready for use when purchased, but the tyro will always find it safer and a great saving of time, to re-tin them just before use. The end to be soldered should be well polished with a file, or a piece of glass-paper sprinkled with resin, and soldered all round until it presents a perfectly smooth surface, when it is ready for use. The actual making of the joint is then to be performed, precisely as already described for the pipes. It will, perhaps, be as well to mention in this place, that it is of the utmost importance, to turn the gas off at the meter before any work at the pipes is attempted, or an explosion consequent upon the escape of gas will very probably occur. We have known of such accidents, and would therefore advise the workman to see to this matter himself.

Brass may also be soldered together by the same means and with the same materials, although a harder solder will of course be better; the only precaution required will be to thoroughly clean and tin the parts to be joined,

as suggested above. Copper may be treated precisely as brass, and is as readily worked in the same manner.

The common metal, zinc, requires different treatment, as before this can be joined, the surface must be chemically cleaned. Besides the ordinary tools above-named, a small quantity of muriatic acid, or "spirit of salt," as it is sometimes termed, must be procured. When the sheets of metal to be joined are laid together in their proper position, a little of the acid should be brushed over the surfaces which are to be soldered. The solder should then be applied, and drawn along the line of the joint, when it will firmly unite the parts. When the operation is perfected, the acid should be removed with a rag; and as the smell of the muriatic acid is particularly unpleasant, it is well to perform the work out of doors. The fumes of the acid are also exceedingly destructive to iron or steel, rusting them all over in a few minutes; the bottle in which the fluid is kept should always be carefully stoppered and placed out of reach. Zinc may be soldered to brass, copper, lead, and other metals; but in all cases the first-named metal must be prepared by means of the acid above-named. As zinc is at the present time so extensively used for various purposes in the house, we will now offer some hints as to how it may be best worked.

We will suppose, for example, that it is desired to line a flower-box, or the bottom of a fern-case, with a zinc tray, which is always required, in order to retain the waste water. If the box is six inches deep, six inches wide, and three feet long, the size of the zinc required will be eighteen inches wide and four feet long. The width required to form the bottom of the box should then be marked upon the metal, as should also the length. These dimensions should be scratched slightly into the surface, and the corner pieces cut completely out. The two ends and sides may then be turned up so as to form a box of metal, and the angles dressed up to a square block of wood placed inside, by means of a wooden mallet. A hammer should not be used, as this would probably damage the sheet, and work it irregularly.

The tray should now be placed in the wooden box, and the four angles soldered up, as before directed. If a pipe be required, it may now be soldered in where necessary. When a straight line is required in the angle, it will be found a great saving of time and labour to slightly scratch the metal as we have directed above; as, being weakened at that part, it will readily bend and require less dressing-up. Of course, this must not be carried too far, or the zinc will break. It should be remembered that zinc is far harder and less ductile than lead; and if any elaborate pattern is required, the best plan will be to cut out the parts and solder them together. For all ordinary purposes thin zinc will be sufficient, and that known as "No. 13" will be found the most useful to the amateur. Lead is far softer and more easily beaten into shape than zinc; but it is dearer, and not so easily soldered. It is, however, far more durable, especially if exposed to the air; while, on the other hand, a cistern of zinc is to be preferred for storing the water for domestic use, as it has been repeatedly proved that lead is soluble, and is taken up in considerable quantities by certain kinds of water.

There are numberless applications of the art of soldering, which it would occupy pages to enumerate; but, as in all of these the same principles are involved, we have confined our attention to those which are most likely to be useful in the household. The household mechanic will most probably find some little difficulty at first, but a very few attempts will render the manner of working familiar to him; and having once succeeded in soldering a joint, all work afterwards will come easily. The great thing, which is of all others the most important, is that of perfectly cleaning the surfaces which are to be

soldered. Unless this be effectually accomplished, a joint cannot by any possibility be made; but bearing this in mind, and carefully attending to it, success is sure to be attained.

ODDS AND ENDS.

Liquid for sizing Prints previous to colouring them.—

This fluid is prepared by dissolving one ounce and a quarter of white curd soap, and the same quantity of the finest pale blue in one pint of boiling water. The liquid should be carefully strained through linen while hot, and then three-quarters of an ounce of powdered alum is to be added. When it is wished to colour prints that have been printed on paper, in the manufacture of which so little size has been used that the colours are likely to spread, the fluid is to be carefully applied with a broad camel-hair brush, so as to fill up thoroughly the pores of the paper. The print should afterwards be allowed to dry gradually, and is then ready for painting on with water-colours.

Blacklead Pencils.—The first step in making a blacklead pencil, is to cut cedar-wood into long strips, of about the width, and half the thickness of the future pencil. A groove to receive the blacklead is then cut in one half by means of a kind of circular saw. Then the blacklead is cut into thin slices the thickness of the groove, carefully scraped, and after having been exposed to the vapour of burning sulphur, is introduced into the groove, so as to fill it. Then when the groove is completely filled, an instrument with a sharp point is drawn along the lead on a level with the wood, so as to notch it, in the same way as a glazier does with a diamond on a piece of glass when he wishes to divide it. The slices of blacklead are now snapped off level with the top of the groove. Then a small brush is dipped in melting glue, and passed carefully over the surface of the wood containing the blacklead, and another piece of wood, in which the groove has not been cut, is placed over it, and pressed firmly on it. The pieces of wood thus joined together are then placed on one side to dry. When the glue is perfectly hard, the pencil is made to assume a circular form by means of a machine constructed for that purpose, afterwards stamped with the name of the manufacturer, and letters indicating the nature of the blacklead contained in the pencil, and then French polished. The letters employed for this purpose are, H when the blacklead is hard, HH when still harder, and HHH when very hard; B when the lead is black, BB when still blacker, and BBB when very black, and HB when both hard and black. Pure blacklead is only employed for expensive pencils; those of inferior quality, and especially what are called plumbago, consist only of two-thirds plumbago, mixed with one-third of sulphuret of antimony. These substances are ground together with water, and the composition put into large clay crucibles, and exposed to intense heat in a furnace. The materials are then placed in an iron box, and subjected to the most powerful pressure by an hydraulic press, so as to cause it to assume the form of a compact mass. These blocks are afterwards sawn into thin slices, and used in the same manner as pure blacklead. Sometimes for very inferior pencils, the composition is made of a mixture of powdered blacklead, fullers' earth, and paste. Ever-pointed pencils are prepared by cutting the plumbago into thin slices, and then dividing each slice into square strips. These are made round by being made to pass through round holes drilled in ruby, no other material—owing to the hardness of the plumbago—answering so well for that purpose. The hardest steel is worn away very rapidly, and even the ruby is rendered unfit for use in a few days. This is a remarkable instance of the power of materials otherwise inferior to destroy more valuable substances.

BOOTS AND SHOES.

IV.

SOME little explanation may be given respecting heels of ladies' boots, not only because this subject is frequently a fertile source of criticism and sarcasm, but also for a more important reason, which is, that to buy boots having the present heels, with judgment, some little technical knowledge is necessary.

There are three distinct manufactures of heels. The first, and the more general, is a "built" heel, or heel in which pieces of leather are put one upon another until the height of heel required is obtained. Another is the "rand" heel or "Wurtemberg" heel. This is formed by enclosing a wooden heel within a covering or lap of leather, which is first sewn to the "seat" or insole at the heel, then being stretched over the wooden heel, the sole is made to bend round the breast of the heel, and the "rand" is stitched to it; a "top piece" is now put on the heel, and the rand and wooden heel are further secured by stitching round the bottom of the heel. By this means, heels of any colour may be put on, embroidered "rands" and ornamental designs may be flowered on the heel; they may be made of gilded leather, and a variety of ornamental forms given, which is not possible with any other heel. We append a sketch of an elegant dress-boot, with a "Wurtemberg heel" (Fig. 2), but leave our readers to choose such a one for wear or not, as they may deem advisable. The next class of heel is a wooden heel, which is attached to a boot or shoe by means of screws through the sole.

Large numbers of boots with these heels were sold during the summer a few years ago. The heels were imported from Paris in boxes; they were highly polished, jet-black or gilt, and were attached to the heels of a pair of boots made with a single piece of leather at the place of the heel. It is needless to say that these goods were totally incapable of bearing any amount of wear, and were only purchased for their show; and, as a *nouveauté française*, lasted a few days, when the heels falling off, the boots became unwearable.

We need only add that for wear in ordinary, nothing can surpass a built-up heel; that if a very showy boot is required, the true "Wurtemberg heel" is the only one capable of doing justice to the purchaser. We shall not enter into the debate respecting high or low heels, nor do we think it worth while discussing that which can only be an ephemeral fashion.

A low heel, and a rather broad one—so that it is not larger than the heel of the foot—is best. Our feet were made to go flat on the ground, and the most beautiful

remains of antiquity are to be found in the statuary sculptured long before high heels or any heels were ever thought necessary. Those who are determined to follow fashion in all its various eccentricities, will receive no denial from us, however cogent our reasoning may be. To those who, of a less aspiring class, desire only neatness and comfort, we say have broad toes and low heels to both boots and shoes.

There is one more class of foot-clothing which will require our attention, because, although not particularly or specially belonging to ladies' wear, it is one that has been from time long past, almost entirely, both as far as the management and manufacture is concerned, in the hands of the fair sex. We allude to the slipper. Ladies' slippers are of various kinds, more or less elegant in their manufacture, lined with fur in winter, made of fancy kid in summer. In the house, when in use, they indicate domesticity and home enjoyment; when, as a piece of embroidery on the worktable they indicate industry and thoughtfulness, they hold an important position; also as being a very favourite winter present from the female to the male portions of the household.

The simple slipper is merely a shoe, made easy and always with a single sole. It is made of various materials. Very common slippers, but warm nevertheless, are made by plaiting list in the form of a shoe. The next class are made of Brussels carpet with a leather sole, but these are sure to rip to pieces before they are half worn out. The next class—and we now speak of gentlemen's slippers—are made of morocco; the best are made of pigskin, which, while it is soft and

pliable, experience has likewise shown to be very durable.

As our lady readers may feel disposed to try their hands at a little slipper embroidery, we append a design which may be either worked in chain-stitch or embroidered. The following remarks on the material to be used and the colours to be chosen will probably be acceptable:—

Cloth or felt is generally chosen as the base, or body, or "golosh," as it would be technically called. Any warm colour, such as red, crimson, purple, magenta, buff, or such-like tint, may be made use of. The cloth should be as stout and strong as possible; but, as it is necessary to give an elegant tone to the work, it will be desirable to contrast the colours of the embroidery with the colour of the golosh. If black silk binding be used, it will contrast well with any of the colours mentioned. If the colour chosen be crimson, magenta, purple, or red, yellow or orange will look rich and satisfactory. Green binding will do well with red or purple; but the highest kind of ornamentation is that where the colours are not in too strong contrast, but where the ornamentation and

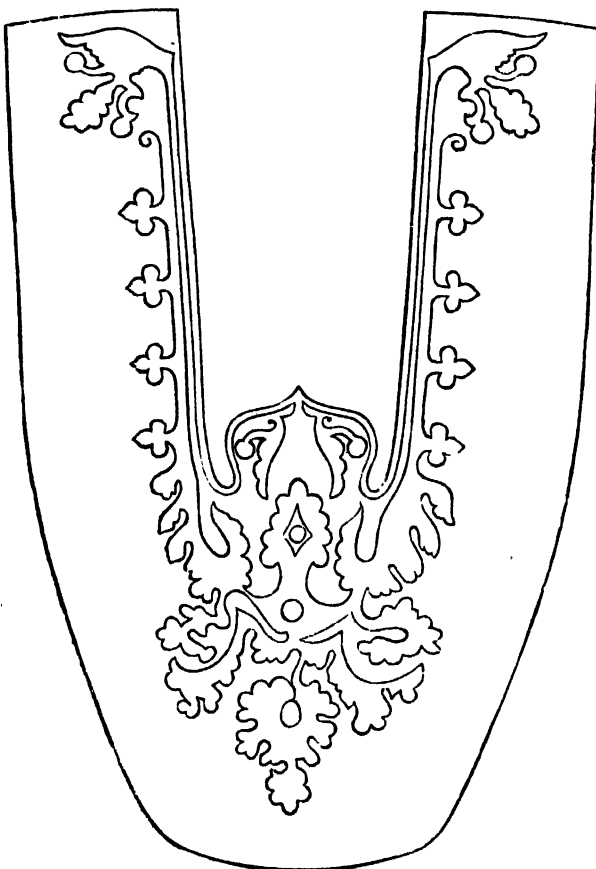


Fig. 1.

the body of the work form a harmonious whole. To secure this, strongly contrasting colours should not be chosen, but such colours as, while they show as a contrast, do not stand out from each other too boldly.

Fig. 1 is a design for the golosh of an embroidered slipper, drawn to one-fourth the size of a slipper suitable for a man about five feet eight inches high. The ornamentation will be found, with a slight extension in length, to suit a slipper up to what would be called a ten size, or a slipper about ten inches long. If the golosh be cut by one who has not cut such an article of clothing before, let it be long at the toe, broad at the side, and, without altering the ornamentation, a little longer at the back.

GENTLEMEN'S BOOTS.

With these remarks we proceed to the consideration of gentlemen's work, and it will be as well to follow the same order. All the remarks previously made with respect to cheap goods might be repeated with double emphasis here.

The field for consideration widens as we advance, for the male population have very many more occupations which necessitate a variety in foot-clothing than the female. Hence we have gentlemen's boots for walking, riding, summer, winter, for cricketering, boating, and running, all of which have their peculiar characteristics adapted to the uses for which they are intended.

We shall proceed from the more ordinary to the less ordinary; and, in the first place, as regards boots to be used for general wear.

Summer and winter boots, with some persons, are a necessity. In winter, and more especially in damp weather, the feet should be thoroughly protected from cold, but principally from damp. Many internal disorders may be traced to inefficient protection during cold, damp weather; whilst many diseases may be considerably alleviated by a proper foot-covering. It is not in this case only necessary to keep the feet free from external moisture, but it is also necessary to thoroughly relieve it from the internal moisture arising from perspiration. The best preservatives from winter cold and wet are a pair of cowhide "bellows-tongue bal-morals." We shall proceed to a description and illustration of these.

The kind of sole designated clumped, as before described, is more fully appropriate here. The best is the French clump, because in scraping the dirt off the soles, especially if covered with heavy earth or clay, the ordinary clump is rather in the way.

Fig. 3 represents a boot of the weather-resisting class we are now illustrating. An endeavour has been made to show all its principal features, as far as the general form is concerned. A boot of this description should be an easy fit, but not so easy as to let the foot slip backward and forward in it. It should be broad across the toes, should not have a very high heel, and should not pinch the ankle when laced up. With these requirements, and good material and workmanship, a boot of this kind will keep the feet dry, and resist any kind of weather. It is also perfectly waterproof up as far as it covers the foot and

ankle. If it should be required to have protection from water higher than this, then another kind of boot should be worn; but before proceeding to a description of these, a few words as to the method of using such boots may not be out of place. Boots like these are

made of cowhide, sometimes black and sometimes russet. The russet dressing leaves the leather more in its natural state, but the enticing polish of blacking cannot be used on such. This is not of much consequence if, as in the case of civil engineers and surveyors, or travellers, the wearer has to be out in all weathers; but whether black or brown, they should never be allowed to lose the oil which permeates the skin. If such an event happen in drying the leather, if the uppers become hard and horny, it will be found almost impossible to get the foot in again. This event may be avoided by using cod-oil at the time of cleaning, or the dubbing sold by many bootmakers, or tallow and oil, or, in fact, most fatty substances which have no drying tendency, or tendency to acidify.

With these conditions of preservation in view, the boots may be washed in warm water, after being cleansed from the rough dirt; then they should be oiled, then left for a day or two; and if then desired, may be polished as far as the oil will permit.



Fig. 2.

HINTS ON VARNISHING.

BEFORE beginning to varnish it is necessary that the surface to which it is to be applied should be perfectly free from all grease and smoke-stains, for it will be found that if this is not attended to, the varnish will not dry hard.

If the varnish is to be applied to old articles, it is necessary to wash them very carefully with soap and water before applying it. When it is wished that the varnish should dry quickly and hard, it is necessary to be careful that the varnish should always be kept as long a time as possible before being used; and also that too high a temperature has not been used in manufacturing the varnish employed. It is likewise customary, when it can be done, to expose the article to the atmosphere of a heated room. This is called stoving it, and is found to greatly improve the appearance of the work, as well as to cause the varnish to dry quickly. After the surface is varnished, to remove all the marks left by the brush, it is usually carefully polished with finely powdered



Fig. 3

pumice-stone and water. Afterwards, to give the surface the greatest polish it is capable of receiving, it is rubbed over with a clean soft rag, on the surface of which a mixture of very finely powdered tripoli and oil has been applied. The surface is afterwards cleaned with a soft rag and powdered starch, and the last polish is given with the palm of the hand. This method is, however, only employed when those varnishes are used which, when dry, become sufficiently hard to admit of it. When it is wished to varnish drawings, engravings, or other paper articles, it is usual to previously paint them over with a clear solution of gelatine. This is usually prepared from parchment cuttings.

COOKERY.—LXXI.

FRENCH DISHES (*continued from p. 4*).

Beurre de Montpellier (Montpellier Butter).—Take equal quantities (about a handful of each) of tarragon, chervil, and pimpernel, together with a small quantity of chives, and place them in boiling water to blanch. Then remove them, allow them to cool, and drain off all the water adhering to them. Then dry them on a cloth, and compress them to remove all moisture. Now place them in a mortar, with a clove of garlic, a handful of capers, the yolks of eight eggs, boiled hard, the same number of anchovies, and some gherkins. Beat them together for five minutes, and then add one pound of good butter, season with nutmeg, salt, and pepper, and again beat them up together until perfectly mixed, a wineglassful of the finest olive oil being added during the process. When well mixed, pour on it, by little and little, a quart of *vinegar à l'estragon* (vinegar flavoured with tarragon). Colour the preparation with the green colouring prepared from spinach-leaves. When the whole is thoroughly mixed, remove it from the mortar, and place it in a suitable vessel for sending to table.

Aspic Jelly, required for the preceding, and similar dishes, is prepared by boiling chervil, tarragon, and burnet in white vinegar, until the vinegar becomes flavoured. Then put into the pan some jelly prepared by boiling down a chicken, and season it with salt, pepper, and spice. Four eggs are then to be taken, and the whites well beat up in a pan; to this add the contents of the other pan, and place the vessel on the fire, continually stirring until the contents nearly boil, which may be known by their becoming white. Then put on the cover, and allow it to stand in a hot place until it becomes clear, and strain through a sieve or calico.

Sauce Mayonnaise (Mayonnaise Sauce).—Beat up the yolks of two eggs with some oil and two teaspoonfuls of tarragon vinegar; to this add a wineglassful of olive oil and more vinegar; continue to beat up the mixture as quickly as possible, gradually adding more oil and vinegar. While the contents of the vessel are beaten up into a froth, freeze the contents, by surrounding the vessel with ice, or a freezing mixture, or, if they cannot be obtained, some cold spring water.

Beurre de Ravigote (Ravigote Butter).—Blanch in hot water a handful of parsley, and rather less of chervil, and still less of pimpernel; also blanch a little tarragon and a small handful of chives. Take them from the water, and dry them in a cloth; then put them in a mortar, with a quarter of a pound of fresh butter. The appearance of this butter may be rendered more pleasing by the addition of the green colouring from spinach.

Beurre d'Anchois (Anchovy Butter).—Take six anchovies, wash them, and remove the insides; beat them up in a mortar, with sufficient butter to make a paste. If a pestle and mortar should not be at hand, the anchovies may be made into a paste with a broad knife on a piece of board, and mixed with the butter. *Beurre d'Anchois* is much employed to flavour various sauces, especially those that are used for beef-steaks. It may also be used as a *hors d'œuvre*.

Beurre de Fines Herbes is prepared in the same manner as the *Beurre de Ravigote*, a shalot and some chives being added. The materials are to be blanched in hot water, drained, and beat up with a quarter of a pound of butter into a paste.

Beurre d'Ecrevisses (Crab Butter).—Remove the insides from a number of crabs' claws; bruise them as fine as possible in a mortar; add some good fresh butter, and mix them well together. Then place the mass in a saucepan with a little water, and simmer it over a gentle fire, taking care that the contents do not boil. When

sufficiently done, remove the pan from the fire, strain the contents through a sieve into a vessel surrounded with cold water. When the butter has become cold, remove it, and place in a proper dish for the table.

A similar dish may be prepared, in the same way, with lobsters, shrimps, or prawns.

Beurre d'Ail (Garlic Paste).—Beat up some garlic in a mortar, occasionally moistening it with olive oil, until it forms a mass. This composition, which is usually known as *ayoli*, is chiefly employed for flavouring dishes prepared in the provincial manner.

Beurre Fondu (Melted Butter).—This is employed chiefly to use with fish dressed *à la Hollandaise*. It is thus prepared:—Put into a pan some butter, with salt, pepper, and lemon-juice. Simmer them gently, continually stirring the butter with a wooden spoon, until it is half melted. Then remove the pan from the fire, and continue to stir it until it becomes quite liquid; care being taken not to allow the butter to remain on the fire for too long a time, otherwise its flavour will be impaired.

Sauce Piquante, a very favourite sauce, is thus prepared:—Take some shalots, chop them into small pieces, and put them into a pan with butter and vinegar. Place the pan on the fire, and keep stirring the contents until the vinegar has almost evaporated. This may be known by the butter becoming clear, owing to the acid becoming absorbed by the shalots, to which it imparts its acidity. Then mix in with them the same quantity of flour as that of the butter that was used, and expose the contents to heat for a few minutes, until they become browned. When this happens, pour in a sufficient quantity of stock broth that is required for the sauce, colour it with caramel, and season with pepper. Allow it to remain on the fire for a quarter of an hour longer, and add a tablespoonful of gherkins, and the same quantity of parsley, both chopped up into small pieces. Afterwards boil the liquid for a few minutes, when it will be ready for use.

Beurre Noir (Brown Butter).—Cut some butter into pieces, put it in a saucepan, and melt it over the fire, until it becomes of a brown colour, and then allow the butter to become cold. Then take another stewpan, and put into it some vinegar with pepper, and evaporate it down to two-thirds. When the butter is cold, add it to the vinegar and pepper, stir it up well, and warm it over the fire, care being taken that it is not allowed to boil. If the butter did not become cool before adding it to the vinegar, it is possible that it would spurt over the sides of the vessel. As the usual taste of the butter is entirely destroyed by the heat to which it is subjected, it will be found that an article of the cheapest kind will answer for this purpose as well as the best.

Mayonnaise de Perdreaux (Mayonnaise of Partridges).—Cut three roast partridges into pieces, put them into a stewpan. Add to them a tablespoonful of tarragon vinegar, four of oil, three of aspic jelly, and shalots, tarragon, and burnet, cut into small pieces. Put the pan on the fire, and simmer the contents until sufficiently done. Then empty the whole into a dish, and place the backs and breasts of the partridges at the bottom, and the limbs around them. Cover the partridges over with mayonnaise sauce. Before sending to table, the dish is to be garnished with aspic jelly, or with *Beurre de Montpellier*.

Tarragon Vinegar (required for the preparation of the above).—Take some tarragon-leaves, wash them in cold water, and dry them on a soft cloth, place them in a wide-mouthed jar, cover them over with strong wine vinegar, and secure the mouth of the vessel with a good cork. Macerate the leaves for some weeks, the jar being placed in a warm situation. Strain off the clear liquid through calico, and preserve the vinegar for use in a well-closed vessel.

THE ASS.—I.

HISTORY, CHARACTERISTICS, ETC.

THE meek and painstaking beast of burden, the familiar donkey, deserves the place it ought to take of being ranked next to the horse as an animal useful to man. Were there no horses it would probably stand first in man's esteem, and all the expense and labour bestowed upon the highly-prized and favoured horse, would be transferred to it; the ass would then be fed, attended, and stabled; and the boast would be, that with us it had reached its highest state of perfection. In nearly all other countries the donkey is treated as the English treat their valuable horses, and few animals better repay kindness, or have better qualities to develop. With us it is the hardest-worked and worst-rewarded beast in our country, yet this faithful animal saves thousands of poor people from starvation by its useful services. It finishes its work in silence, serves with steady perseverance, and evinces no kind of ostentation, which is certainly a considerable recommendation in a domestic. Its meals require no preparation, for it is perfectly well contented with the first thistle that presents itself. It does not even pretend that anything is due to it; but thankfully accepts whatever is offered; and although it has a relish for the best things, it contents itself with the most indifferent.

The ass, being so nearly allied to the horse, is often compared with it, and necessarily suffers by the comparison in many respects; indeed, Buffon and other writers assert that it is only a degenerated horse; but its rank and species are ascertained to be peculiarly its own. Though so nearly approaching the horse in form, it is of a distinct class, possessing qualities of its own, and were there but one of each kind, both races would become extinct. There is a character in every animal besides its conformation or way of life that determines its specific nature. The ass in its wild state has a positive aversion to the horse, and will not suffer him to remain in the same place where it grazes. They all fall upon him, and without giving him the liberty of flying, they bite and kick him till they leave him dead upon the spot.

We have every reason to believe that the ass was domesticated prior to the horse: it was the beast of civil life, in contradistinction to the horse, which was more especially appropriated to war. But the ass has radiated from its original nursery more slowly than most other domestic animals. It, however, has never lost the indications which prove that the original stock was destined by nature for a dry, rugged, mountainous country, destitute of luxuriant humid plains abounding with succulent vegetation. The hoofs, unlike those of the horse, are long, concave beneath, with extremely sharp rims, and admirably adapted for treading with security on slippery rough declivities, which, as experience has fully taught, are ill-suited for the round flat hoof of the horse. The shoulders are comparatively lower, and the croup higher than in the horse, and the animal can better support a weight thrown partially on the croup or hip-bones than when placed behind the withers; sustained by the dorsal vertebrae, in ascending or descending steep rugged paths, the pressure of the weight on the croup would, we think, be the least disadvantageous to a beast of burden.

The horse loves to roll in the mud, but the ass prefers the dust of dry roads or sandy places, as if to announce its desert home of ancient days; it also prefers the dry and prickly thistle and rough coarse herbage to succulent pasturage, and is patient of thirst, drinking but little, and then only sipping from the surface, which it merely touches with its lips, and never, like the horse, dips his nose into the stream. It dislikes wet or marshy ground, and will even avoid a roadside puddle, as if disliking to

tread in the wet. The skin is hard and dry, and very seldom, if indeed ever, is the hair to be seen streaming with perspiration. The skin is far more insensible than that of the horse, and consequently a slight goad, as used of old, if applied mercifully, is far better than the whip for stimulating the animal into action; while the cudgel, the blows of which injure muscles and bones, is only to be looked upon as the instrument of a merciless ruffian. The brain of the ass is proportionately larger than that of the horse, or nearly in the ratio of eight to five.

The ass walks, trots, and gallops like a horse, but refuses to move if its eyes be covered—a circumstance in accordance with the feelings of a quadruped destined by nature to traverse irregular and precipitous paths, where a keenness of vision is requisite in order to ensure safety.

The structural differences between the horse and the ass are trifling; perhaps that on which the very different tones emitted by the voice depends is one of the most striking. The various sounds are arbitrarily named, without reference to the sounds themselves; thus we say the horse neighs and the ass brays. Neighing appears produced by expiration, as are most of the tones of voice from the horse. In the ass the principal sounds are those of braying, which appears to be produced through the mouth by a convulsive displacement of the velum palatæ, assisted by the vibrations occasioned by the extent of the laryngeal sacs, and by their being so much separated from the cavity of the larynx. It appears to be effected by alternate inspiration and expiration; the inspirations forming half-tones, and the lengthened notes being formed of expirations.

In the midst of all the differences observed between the varied races of the horse, not one has ever been known with the long ears of the ass; neither among the varieties of the ass has any one ever appeared without them.

Their geographical distribution is also somewhat different; which, of itself, presents a distinctive line between them; not, however, often remarked on by naturalists. The horse flourishes in temperate climes, and can maintain life in countries bordering even on the frigid zone. The ass, on the contrary, is curtailed in his growth, even in temperate localities, and doomed by nature to be incapable of much improvement in moist and cold climates.

Externally, the horse and the ass also differ in the mane and tail. In the former, they are full and flowing; in the latter, the mane is short and stiff, and the tail with a tuft at the extremity, more like that of the cow.

The horse is proverbial for the number of its diseases, which are principally connected with the circulatory system, owing to the habitual state of excitement in which it is kept, or from too close confinement to the stable at other times. But the ass is wonderfully free from disease; it will never overfeed itself like the horse, nor drink floods of cold water. It is generally turned out to seek its food as best it can, and thus gets more regular exercise and plenty of fresh air. With the run of an acre or two of ground, and protected from the cold in winter, an ass, or even two, will give very little trouble, and none of the expense entailed by doctoring that a horse requires.

The price of horses or ponies is numbered by pounds, but that of the ass can be counted by shillings. A good-sized handsome ass may be bought for thirty shillings, a young one for less than a pound, and a mother and foal for three pounds. This is by no means the price given for asses in the East, where the fine Arab ass sold in Persia will bring from £40 to £50.

Asses may be had at all fairs throughout the country—those nearest to London are Croydon, Kingston, and Barnet—every spring and autumn. Also constant sales take place on many of the commons in the immediate vicinity of London, where they can be had with the harness and little chaise.

From Arabia the wild ass extends over certain portions of Northern Africa, and even into the Island of Socotra, off Cape Guardafui, where it was seen by Lieutenant Welsted, who says: "They wander about in troops of ten or twelve, evincing little fear, unless approached very near, when they dart away with much rapidity." It was from the deserts of Northern Africa that the Romans chiefly obtained the wild ass—an object of curiosity in the exhibitions of the Circus. Not, however, for the purpose of exhibition only, was the wild ass brought to Rome; on the contrary, it was valued because, being fierce and strong, it displayed great courage and obstinacy in the barbarous combats of the amphitheatre, and defended itself with extraordinary vigour.

Moreover, the wild ass, or rather the young colt of the wild ass, was accounted by the epicures an especial delicacy; its flesh tasting very much like that of the red deer, but more tender. When fed by the mother only, it is called *lalisio*; it has this name when very young, and but for a short time. The foals are of a light fawn colour, almost pink. The Arabs still eat their flesh, but not before strangers. Baron Humboldt informs us of the extraordinary fact, of their being able to obtain liquid, when herding in the arid plains, where no water exists. Their fine sense of smelling informs them that a considerable quantity of moisture is contained in the melon thistle, and their instinct suggests to them the readiest method of procuring it from that singular vegetable cistern. Before they attempt to make an opening into it, they carefully push aside, or break off with their hoofs, the sharp thorns by which it is protected; and in this they generally succeed perfectly, though some few become wounded, or even lamed, by the operation. In this procedure, there is no particle of the innate stupidity which it is customary to attribute to the ass, as one of its essential characteristics.

England, we may add, is by no means a congenial residence for the ass; neither the climate nor the productions seem thoroughly suited to its constitution; here it

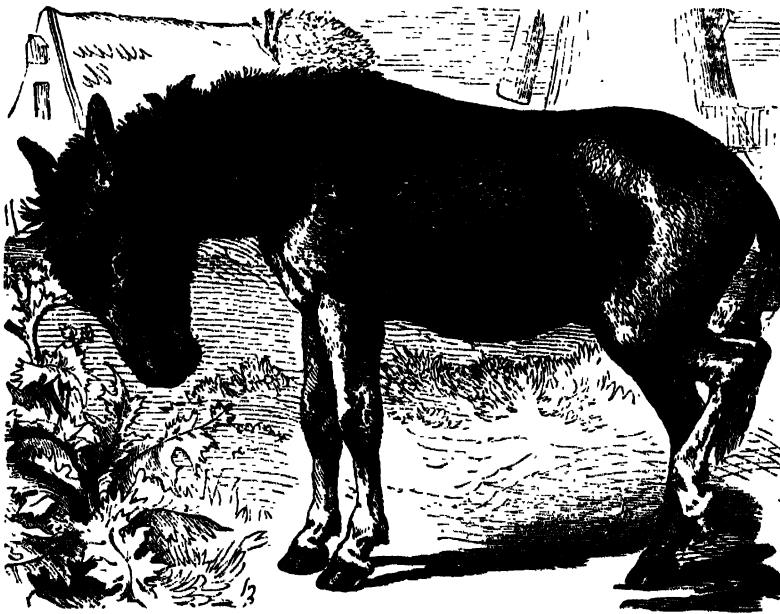
is degenerated, and displays but in a low degree, those qualities which render it, and have rendered it, from time immemorial, so much in request in Western Asia. But this is not all due to climate, as is proved by the statement of Captain Williamson, who describes the ass in



THE WILD ASS.

The colour of asses varies quite as much as that of horses. The white asses of Western Asia are usually in every respect the finest of their species, and their owners

certainly take more pride in them than in any other of their asses. They also sell at a much higher price; and those hackney ass-men, who make a livelihood by letting out their asses to persons who want a ride, always expect better pay for the white ass than for any of the others. Asses of a pure white colour, and to be regarded as *albinos*, are perhaps more common in Spain, where piebald asses of large stature, clouded with large grey patches on a white ground, are



THE DOMESTIC ASS.

still more frequent. There is also a variety with zebra-like stripes upon the limbs to the very hoofs, to be met with in our island and elsewhere, and sometimes even a double cross upon the shoulders is to be seen. The wild ass is described by Pallas as silvery white, with the upper part of the face, sides of neck, and body flaxen; the hind part of the thighs and legs white; a longitudinal dorsal stripe of a deep copper colour, and a cross stripe over the shoulders of the male only. In winter the coat becomes fine, soft and undulated.

MANUFACTURE OF COCOA, CACAOINE, AND CHOCOLATE.

COCOA, called Cacao everywhere but in England, reaches this country as almond-shaped seeds, collected from the fruit of the *Theobroma Cacao*, a plant possessing much the configuration of an outspreading filbert tree, yet with stouter stems, a smooth bark, and some twenty or more feet in height; with leaves not unlike those of the laurel—much enlarged, and flowers white and wax-like. Flowers and the huge lemon-shaped fruit—green, to yellow and red—may be seen at the same time, studded over the main stem from within a foot of the ground, and branches, at intervals of a foot or two, in groups of two and three; each flower or fruit on a short stalk that seems to start immediately from the bark.

Indigenous to Guayaquil as the cacao is said to be, it is found wild in the forests of most territories of tropical America; and from Mexico in the North to Bolivia in the South it is cultivated. The finest brands that reach this country come from Trinidad. Situated off the mouth of the Orinoco, this island since it came under British rule, in 1796, has reaped the advantages derived from a settled Government, and cacao plantations have flourished. It needs six years to lapse before a cacao plant produces, calling for a long foresight in the planter; and so it comes to pass that in the revolutionary States of the Spanish Main, in Venezuela, the country of the once famous Caracas produce, decay has crept into the plantations, and when renovation is attempted, a quick-growing, inferior-charactered species of the plant is mostly substituted.

Up in the glens, each with its rivulet, among the hills are the plantations in Trinidad whose produce is most esteemed. Cleared segments are they of the virgin forest, embedded in it, and reached only from the seaboard by a cutting through it, a track for mules. When first cut down, here and there among the forest trees one is allowed to stand, and such spared trees are the erythymum, standing sixty feet high, and in July one mass of scarlet blossoms, in which the humming birds are ever dipping; and these erythymums are left to afford shade to the young cacao plants, and are popularly yecept *madres de cacao*.

When the harvesting comes on, in June and December, although picking may go on partially during most of the year, the fleshy pods of which the fruit now consists are gathered from the trees, cut open, and the rows of closely-packed, neatly-fitted seeds, to a hundred in number, which each contains, abstracted and gathered in heaps, allowed so to remain for a few days, and then spread out on platforms running on wheels, so that they lie out in the sun to dry, or are run under sheds for protection when the unforewarning tropical shower blows up. As soon as the seeds have become firm and dry, they grow coated by a crisp thin skin, and are then ready to be cast into bags of from one to two hundredweight, in which they are exported.

Before giving an account of the process adopted by Messrs. James Epps and Co., manufacturers of dietetic articles, at their extensive works in the Euston Road, London, it will be well to inquire what is the composition of cacao, and the reasons for its being absolutely necessary that so elaborate and ingenious machinery should be employed.

In the South Kensington Museum may be seen side by side, arranged in a very simple but effective manner, equal weights of cacao-nibs, tea, and coffee, which have been split up by chemical agencies into their various food-constituents; the student thus may see for himself the actual amount of starch (in one saucer), of fat (in a second), and of albumen (in a third), and so on. Over the collection is a table of the results of the analyses, of which the following is a copy:—

CACAO NIBS.

Water ...	5'0		
Albumen ...	20'0	Flesh-formers (Nitrogenised)	22'0
Theobromine ...	2'0		
Butter ...	50'0		
Woody fibre ...	4'0	Heat-givers (Not nitrogenised)	59'0
Gum ...	6'0		
Starch ...	7'0		
Red colouring matter	2'0		
Mineral matter ...	4'0	Waste	00'0
	100'0		

TEA.

Water ...	5'00		
Theine ...	3'00	Flesh-formers ...	18'00
Caseine ...	15'00		
Aromatic oil ...	0'75		
Gum ...	18'00	Heat-givers	52'00
Sugar ...	3'00		
Fat ...	4'00		
Tannic Acid ...	26'25	Waste	
Fibre ...	20'00		
Mineral Matter ...	5'00		
	100'00		

COFFEE.

Water ...	12'000		
Caffeine ...	1'750	Flesh-formers ...	14'750
Caseine ...	13'000		
Aromatic oil ...	0'002		
Sugar ...	6'500	Heat-givers ...	31'502
Gum ...	9'000		
Fat ...	12'000		
Potash (with a peculiar acid) ...	4'000	Waste	35'048
Fibre ...	35'048		
Mineral matter ...	6'700		
	100'000		

In estimating the comparative values of cacao-nibs, tea, and coffee, as articles of food, it is necessary to bear in mind that the manufacturers render the whole of the first available; while a fifth part of the second, and a third part of the last are thrown away, in the form of exhausted leaves or grounds. This is on the supposition that the whole of the other constituents of tea and coffee are consumed, which is not probable; indeed, it would not be desirable to take the whole of the tannic acid contained in tea into the system.

From these tables, supplied by the Government authorities at the Museum for the information of the public, it will be observed that the per-centage of both flesh-formers and heat-givers contained in cacao exceeds that of either tea or coffee. Containing as cacao does nearly one-fourth its weight of flesh-forming materials, and about two-thirds its weight of force-producers, it may readily be pronounced to be one of the most nutritious substances employed as human diet.

It is only in comparatively recent years that cacao has become a popular article of diet, for until the year 1832 the duty on importation of it was so high as to be almost prohibitory; but shortly after that year it began to receive that consideration on the part of scientific men which was required in order to present it in a form suitable for the use of the million. It should here be mentioned that cacao-nibs are not soluble, and that the ordinary way of using them had been to boil them until a coloured extract more or less strong was obtained, when the residue, containing the greater part of the virtue, was thrown away.

It is calculated that in good well-fed beef the proportion of fat is about one-third, so that in cacao the proportion (one-half) is much more—in fact excessive, the stomach cannot digest it by itself—also cacao-nibs contain more of a bitter astringent principle than suits excitable

stomachs, and it is necessary therefore to counteract the otherwise unpleasant effects of these. It becomes, then, the business of the manufacturers to re-adjust the proportions of fat, &c., by artificial and scientific means.

With these views, it was sought to render cacao soluble, and, at the same time, absorb the excess of fat, so that the whole might be quickly prepared for table without boiling, and be digestible. It was then remembered that the Spanish conquerors landing on the American main found the Indians already aware of the means of effecting this, for we read of ("Fancourt's History of Yucatan") their offering the Spaniards to drink "the famous cacao of Tipu," mixed with maize, the only farinaceous substance within their reach, arrowroot not being known to them, and sweetened with honey. These untutored men, taught only by experience, had in those early times prepared their cacao on the same principle which has now again been adopted, as we shall see.

In the establishment we are describing, evidently great pains are taken in the selection of the best cacao, and great care is taken in every stage of the manufacture. Good nuts are known by the strong characteristic smell of cocoa they yield when crushed, by their ripeness, freedom from decay, and the regular formation of their cells. The nuts are first roasted, by placing about one hundred-weight and a half at a time in each large iron cylinder, revolving over a clear coke fire, for about an hour, after which they are turned out into trucks to cool. During this process the nuts have lost about a tenth part of their weight, in the form of steam driven off; while, at the same time, the delicate fragrance of the essential oil is manifested, and the active principle of cacao—theobromine—is acquired. It is in great measure owing to this highly-nitrogenised theobromine that cacao possesses so many valuable properties, being said to restore the waste of the nervous tissues, somewhat in the same manner as tea, but more perfectly.

The roasted nuts have next to be freed from their shells, which now, in consequence of the roasting, are light and brittle. For this purpose they are passed through large steel mills, breaking them up each into three or four large pieces, or nibs, from which, as they fall into large drawers beneath, the pieces of light shell are blown away, by the action of wind from large circular fans alongside, somewhat like the paddlewheels of a steam-boat, but revolving at a very high speed indeed. The pieces of shell are whisked away into a large loft behind, where they accumulate until a sale is found for them at a very low price to florists and others. The loss in removing these shells is nearly 15 per cent.—with the steam lost in roasting, one-quarter of the entire weight of the nuts. Along with the nibs that have meanwhile been falling into the drawers beneath the machines, a few pieces of shell and stalk (too heavy to be blown away) have fallen, and as these cannot be made soluble, but would be very indigestible, they are removed in the next process. With this view, all the nibs that are day by day produced by the dozen or so roasting and winnowing machines, are carried into a large room and spread out on long tables, around which a number of clear-sighted and nimble-fingered girls are all day long engaged picking out the pieces, until at last the nibs are perfectly freed from them, and ready for grinding. They are now in the form in which they may be seen in many grocers' windows.

The next process in the manufacture is grinding the cacao-nibs, which is only effected perfectly by the aid of elaborate machinery. The large portion of natural oil contained in them suggested to the manufacturers a means of assisting the process, by bringing the influence of heat to bear upon them at the time of grinding. This idea they have beautifully carried out by means of the machinery we are about to describe, by which the *solid* cold nibs are reduced to a *liquid* molten form. In a large work-room

below those wherein the processes of roasting, winnowing, and picking have been carried out, and descending in a regular current through a series of pipes, the nibs reach three large sets of mills, one set of which may be thus described. Six mill-stones, each half-sunk in a hollow iron jacket, with a constant supply of steam heating it, are arranged horizontally in pairs, alongside each other, the faces of the stones almost in contact, the middle pair a couple of feet higher than the other two pairs. Of each pair, one stone is fixed, and the other is made to revolve with great force and speed, the nibs being ground in passing between each pair of fixed and revolving heated stones. They are first made to pass between the middle pair, through a round hole in the centre, being drawn in between the stones by centrifugal force, and so passing between are reduced by the heat and the immense pressure to a semi-liquid paste, when, by a very ingenious contrivance, this is transferred along regular channels to the holes or "eyes" of the other pairs on either side. These work in the same manner, so the cacao nibs are thus twice ground, first by the middle pair coarsely, and secondly by the outer pairs perfectly; on running out of the latter, the result is a fine liquid, smooth between the fingers like butter, and of a rich reddish-brown hue. It has been seen that cacao contains one half of butter or oil; and it is on this account that after the process of grinding, the cacao-nibs quit the machine in a liquid form, for the steady steam-heat brought to bear on them melts the butter, which carries with it also the solid constituents. It is now necessary for the manufacturers to fit this rich unctuous substance for food. This is effected in the manufacture of cocoa, cacaoine, and chocolate.

It has been found, after nearly half-a-century's experience, that the great demand of the public is for that preparation of cacao which, while preserving intact all the valuable food-constituents, can be made for the table immediately it is required, without boiling, that is, which is in a soluble form. Cacao consisting of half oil, this would float on the surface of the cup, when intimately mixed with boiling water, while the other constituents would settle at the bottom. The oil is the great characteristic of *fine* cacao, and the latter would without it cease to be the great vitaliser it is. In cocoa, then, Messrs. James Epps and Co. have preserved all the components, and at the same time made the preparation soluble and digestible, by thoroughly incorporating with the ground liquid cacao a moderate but just sufficient quantity of West India arrowroot and loaf sugar, which absorb that portion of the oil which would otherwise float on the surface, and render the beverage to be obtained perfectly smooth and digestible without the labour of boiling. This incorporation is effected by means of rollers, running round and round, after which the cocoa is allowed to cool in large tin pans, which are put on one side in a well-ventilated warehouse. When quite cold and hard, the "block" is turned out of the tin pan, carried to a large revolving cylinder that is perforated with holes (like a nutmeg-grater), cut up by it into a coarse powder, ground again by a steel mill into a fine powder, then carried into the adjoining building, and stored in sacks ready for packing. It is an interesting sight to witness next the process of making the various packets and labelling them, a large number of young women being constantly employed in weighing the powder, packing it in tin-foil and paper, and labelling the packets, boxes, &c., after which it is ready for delivery to the grocers for sale.

The great bulk of cacao consumed in this country is in the form just described, the convenience and advantage of its perfect solubility being so much appreciated; there is, however, a certain demand for two other preparations of cacao, provided for those to whom the necessary process of boiling them is not an obstacle. Chocolate is one of these, and is prepared by intimately mixing the ground

cacao-nibs before alluded to with powdered loaf-sugar, after which the paste is run into small flat moulds, on leaving which, cold and hard, the tablets are wrapped up ready for sale. The other, cacaoine, is a beverage intended for use in the later hours of the day, in the place of tea, having very little consistence—not more than that of coffee. As a substantial article of food is not so much desired as a delicate and attractive luxury, a balance of the proportions of the constituents of cacao has been otherwise obtained, in the removal of the greater part of the natural oil by the most powerful pressure. The cacao, still hot and liquid, as it issues from the grinding-mills, is put into bags, made of a very thick and strong material. Four of these bags are then piled up on the table of a powerful hydraulic press, in a perforated iron-box previously made hot, a thick and heated iron plate being introduced between each bag. The pump of the apparatus is then worked, and the “ram” presses the bags with such force as to squeeze out the greater portion of the butter-like substance or fixed oil contained in the nibs, which runs into a tray placed to receive it. The fatty matter thus obtained is of a cocoa-like colour, but when washed with water becomes of a saffron-yellow. It may perhaps give some idea of the immense force exerted on the cacao by these presses, when we state that they have been constructed to afford a pressure of one hundred tons. When the fatty matter has ceased to flow from the press, the bags are withdrawn, and their contents removed and allowed to cool. This is then rolled under heavy cylinders, and, after having been finely ground and sifted, is then put up into packets and canisters for sale.

As to the preparation for the table of the productions we have named—prepared cocoa, cacaoine, and chocolate

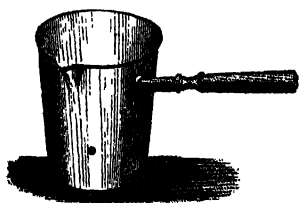


Fig. 1.

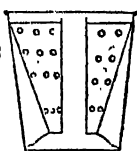


Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

—we have already stated the first to be soluble; the other two, however, need to be boiled. And we may add, to make boiling easy, Messrs. James Epps and Co. supply a utensil which does so effectively, for it needs little supervision. The illustrations, Figs. 1, 2, and 3, represent this vessel, called a *cacotiére*, and in which, when the contained liquid is in a state of boiling, it is bound to pass up the tube in the centre, and to fall, not into the fire, but into the vessel's outer chamber.

In the illustration, Fig. 4, a representation is given of a nut of the *Theobroma Cacao*; and Fig. 5 gives the appearance presented by a transverse section of the same nut, showing the cells of which it is composed.

THE TOILETTE.—XXIII.

PLANTS AND THEIR PRODUCTS EMPLOYED IN PERFUMERY (continued from p. 26).

The well-known plant, the marjoram, when distilled with water, yields an oil, commonly called in France the oil of

orgeat, which possesses a powerful odour, and is chiefly used in the perfuming of soap. It is not, however, much employed in the composition of English perfumes.

The narcissus (*Narcissus odoratus*) yields an agreeable scent by enfleurage or maceration, chiefly employed in the production of bouquets, and other scents for the handkerchief.

Jonquil (*Narcissus jonquilla*), a plant of very similar character, much cultivated in the South of France, is employed for the same purposes. The extract is obtained by putting one pound of pomade in one pint of spirit, and digesting for a month.

The winter green (*Gaultheria procumbens*), when distilled with water, yields an essential oil of so powerful an odour, that it requires to be used with great caution. It is chiefly employed in the manufacture of soap, to give the scent of flowers to that material.

Garden rosemary (*Rosmarinus officinalis*), distilled with water, yields a thin essential oil or otto, employed in the composition of Hungary water, eau de Cologne, and other preparations.

TEXTILE FABRICS IN DOMESTIC USE.

II.

Velvet.—This variety of silk manufacture is remarkable for its exquisite richness and softness of surface; a peculiarity due to the arrangement of a number of threads, which are used in addition to those usually employed in weaving a plain silk fabric; and the process is so singular that we may here give a rough outline of it; as, once understood, it will be a very useful guide to the proper means of preserving the material.

Besides the threads required to form the plain silk which forms the back of the velvet, extra ones are woven in to form what is termed the “pile.” The richness of velvet depends upon the closeness of these pile threads, which are first thrown across a small wire bearing a slight groove upon its upper surface. By a most delicate operation these wires are removed from the fabric into which they have been woven, by cutting the threads along the grooved wire with a sharp instrument called a “treval.” This, of course, leaves the two ends of the thread standing above the level surface of the backing, and these, being properly dressed, form the pile. Striped velvets are produced by leaving some of these pile threads uncut. As the work proceeds, all irregularities are removed by means of a very sharp razor, which cuts off any projecting fibres.

It is somewhat difficult to lay down any definite rules by which the quality of velvet may be judged. One of the first requisites, however, is that the pile should be close—so close, in fact, as not to allow the texture of the backing to be seen through it. Another is, that the pile should be short; while the backing should be tested for softness in the same manner as we have described for ordinary plain silk. If the fabric be taken between the finger and thumb, and pressed down, the pile, in a good material, will not yield, or receive a permanent impression. If it does, we may be sure that it is unserviceable, as, when made up for use, it will receive the impression of anything with which it is brought into contact, and will speedily become shabby.

When in use, it is of the first importance to keep the velvet dry, as it is perhaps more easily spoiled by wetting than any other textile fabric. A peculiar kind of brush is made expressly for use upon velvet; and it is unwise to use any other upon a valuable material of so delicate a texture. When velvet is kept in stock—that is to say, not made into garments—the best plan is to roll it, in order to avoid folds. When made up, however, this is of course impossible, and consequently great care must be taken in order to keep it as free from folds as

may be convenient. If laid down in a drawer, it should be upon the top of other things, and nothing of any weight should be allowed to rest upon it. There is no doubt that velvet is better preserved when hung up than when folded, and this course should be adopted wherever practicable. The reason for these precautions will be seen after a moment's consideration. As we have before said, the pile, which is the great peculiarity of the fabric, consists of short threads which stand at an angle to the flat surface of the supporting material or backing. When the velvet is folded, these projecting threads are doubled under or folded, and an irregularity of surface is produced which is quite destructive of the singular beauty which is its chief characteristic, namely, perfect evenness and uniformity.

With ordinary care in treatment, good velvet is one of the most durable of textile fabrics; but any neglect or improper management will result in more damage than years of careful and fair wear and tear. With respect to the cost of velvet, very little can be said, except that a good material must of necessity be expensive. It is said that a skilled workman will sometimes weave as much as a yard in a day, but this is a rare circumstance if a good material be produced. As many as forty or fifty insertions of the wire are required in each inch of material woven; and as each of these wires has to be cut out to form the pile, it may easily be imagined that the process is tedious, and one which involves much labour and expenditure of time. Under these circumstances, it will at once be evident that a cheap velvet cannot be produced; especially as nearly twice as much silk is used to form the pile as is required for the warp thread in the backing. It is true that a so-called velvet is produced at a cheap rate, but this cannot of course be recommended either for beauty or durability; and we can only in this case repeat the advice given with respect to plain silk; namely, that unless a really fair price can be given for it, velvet had better be left unbought.

There are of course almost numberless fabrics of silk besides those which we have already mentioned; but to describe these would be of very little practical use, as the rules for their selection and treatment are almost identical with those we have already offered. It may be expected that we should here offer some remarks on the material known as cotton velvet or velveteen, but as our plan is to treat of textile fabrics with regard to the fibres of which they are composed, we shall reserve our observations upon these until we come to cotton manufactures.

Woolens.—It will be remembered that at the commencement of these articles, we roughly divided the raw material of which textile fabrics are composed into two classes, namely, those derived from the animal and the vegetable kingdoms. Of the animal products, of course silk was first. Next to this, wool is the most important one; and it is of the various fabrics which are manufactured from this material that we next propose to treat. While, however, the first place in the long list of textile fabrics must undoubtedly be awarded to silk, even this must, in its turn, yield the palm to wool for warmth, durability, and the variety of purposes to which it may be applied. If the products of silk are numerous, those of wool are well-nigh innumerable. Broadcloth, curtains, carpets, blankets, table-cloths, rugs, stockings, shawls, and numberless other things of daily service in the household, all owe their origin to this source, and consequently the consideration of this kind of textile manufacture is deserving of the utmost attention.

The manufacture of woollen fabrics is undoubtedly one of the most ancient of arts; and at an early period of English history it had attained considerable importance, and had been subjected to several more or less absurd legal restrictions. The peculiar property of wool which ensures its "felting," or forming a flat layer under pres-

sure, even without weaving, doubtless attracted attention at a very remote period, and from this time, until the present it has been applied to various purposes in the domestic circle. Wools are divided into two great classes, called respectively clothing and combing wools. Of these, the first are mostly used for the manufacture of cloth; while the second is more generally applied to hosiery, merinos, and a great number of fabrics which do not need these peculiar felting properties. Besides the rough division just made, the wool of various animals differs very much in quality; and although by far the larger proportion is obtained from the sheep, another and finer variety is obtained from the goat of Thibet, and it is of this that Cashmere shawls are manufactured. The finest of the European wools is that of the merino sheep, which is more than ten times finer than that of the ordinary British animal. The llama and Angora goat also produce wool of fine quality; but it must not be expected that the materials sold as llama cloth or merino are altogether manufactured of the wools whose name they bear. In fact, the ordinary sheep supplies by far the greater part of our woollen manufactures; and the terms we have just mentioned are very frequently given by imaginative drapers to fabrics which have no right or claim whatever to such titles.

One of the first fabrics of this material which claims our attention is that known as broadcloth, and it is one for which this country is justly famed. It is made from the shorter kinds of wool, and when woven undergoes a peculiar process which is called fulling or milling; and consists of a beating under heavy blocks of wood, which causes the fibres to combine, or "felt," and adds very materially to the thickness, strength, and stability of the cloth. In order to produce the peculiar nap or downy surface of cloth, another operation is however required, which, while it improves the appearance, also slightly diminishes the strength of the material. This process is called carding, and is accomplished by means of the hooked fruit-cone of the plant known as the teasel. In this manner, a portion of the wool is raised from the hitherto closely-laid surface; and drawn in a parallel direction along the cloth. The irregularities are then removed, and the nap laid even, by means of very sharp blades of steel, which revolve over the surface of the cloth, leaving the main texture of course uninjured. In the manufacture of woollen cloth, some twenty or more processes have to be gone through, and, although when effected upon an extensive scale these are performed with comparatively little cost, it will be at once evident that a good cloth is worth a considerable amount per yard; and that those varieties which are sold at a cheap rate must of necessity be of an inferior quality.

WINDOW DECORATIONS.

(See Coloured Frontispiece.)

NOTHING adds more to the pleasant appearance of a drawing-room than appropriate furnishing of the window recesses, and in no part of the room has the recent advance in artistic culture worked more conspicuous improvement. Where formerly it was usual to see heavy and tawdry gilt cornices over numerous and heavy folds of hangings and curtains, with very likely Venetian blinds and gorgeous tassels in addition, we now have simplicity and quiet harmony. There will be a plain pole, or perhaps a plain cornice, simple drapery in quiet tertiary colours, some simple fixed screen to protect the lower window if necessary, and a little simple decoration in stained glass for the upper—some such design, in fact, as shown in the frontispiece, all of the simplest character, and such as of itself gives a sense of repose to wearied mind and body alike.

THE BEARD, SHAVING, RAZORS, ETC.—I.

ALTHOUGH the custom of allowing the beard and moustache to grow is still very prevalent, the contrary is again coming into fashion, and some practical hints respecting shaving and shaving apparatus may not be unacceptable to our readers.

Time of the Day for Shaving.—In the morning, directly upon getting up, is the best time for shaving; then the beard is not so harsh, and consequently more readily succumbs to the razor than it does at any succeeding part of the day.

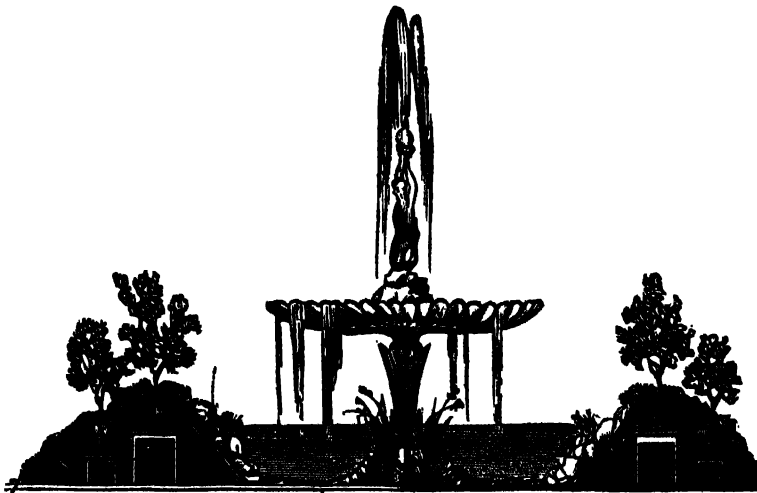
The Razor, and Method of Application.—The edge of a razor, examined through a magnifying lens, is shown to be a minutely fine saw, whose teeth lie in even and regular succession. The operation of shaving is precisely that of mowing; the beard is to be compared to the grass and the razor to the scythe. The mode of applying the razor to the beard is of first importance. If it be applied flat against the face the edge must be most keen to cut the beard at all, and even then many of the slightest hairs will bend under the razor and be passed over. On the other hand, should the angle at which the back of the razor is held from the face be too great, the edge of the razor will be more speedily turned, and require more frequent stropping, besides becoming more quickly worn out. In addition, the risk of cutting the face will be

great. It is a singular fact with regard to razors, that they are found to be improved by a short rest, whether of days or months. Razors cast aside as useless have been frequently received back into favour, and have re-taken their stand as the most efficient. We refrain from suggesting reasons for this acknowledged fact, as they could only be, at the best, speculative. The use of a razor upon a strange beard is a point to be especially guarded against, since if used at an unaccustomed angle, it is sure to be rendered thoroughly inefficient for the shaving of its owner. We would suggest that in every household a pair of razors and a strop be kept for the use of visitors, and that each visitor should strop the razor for himself. The reason why such recommendation should be necessary is, that nearly every one shaves with the razor at a somewhat different angle, as well as strops it so, and under such circumstances the very minute teeth of the razor, which we have described, become so turned as to render it much less keenly cutting when applied at a different angle.

The Selection and Purchasing of Razors.—We shall take for granted what as the advantage of shaving with comfort is fully appreciated by all who shave, so the convenience of being able to shave *oneself* is no less fully acknowledged by the many who cannot shave themselves, and are therefore put to the pains and expense of employing a barber, as they are unwilling to go with unshorn beards. As there are many classes of beards, so are there many classes (as well as qualities) of razors, made to suit

the several beards, as well as the several pockets of the public. Nevertheless, it is rare to find the right razor in the right place, and want of knowledge on the part of the seller as well as on that of the buyer, is the cause of this mischief. It is well known to those who have carefully studied the subject of shaving, that each class of beard requires a razor of particular size and weight, and possessing an edge to suit it. Light, silky beards require a fine, thin, keen, elastic edge; while stiff, grisly beards require a firmer edge, possessing little elasticity. We ourselves, when inexperienced, bought at a first-class West End establishment a pair of razors, which were highly recommended, and, by reason of the respectability of the firm, we believe were sold, as they were bought, in ignorance. Upon trial we found that the beard seemed as likely to cut the razors as the razors the beard. We stropped them and tried them, and stropped them and tried them again and again, but our labour was of no avail in obtaining a satisfactory edge. As there are

many classes of beards, it requires the vendor of razors to understand the beard of his customer, or how can he supply him with the right article? We should therefore advise our readers to purchase at an establishment, of which the proprietor is a scientific man, and experienced in the art of using razors. At the same time we do not wish to be understood to say that because one razor is cheaper than another it must



FOUNTAIN FOR TEMPORARY BALL-ROOM.—Page 39.

necessarily be worse, for we have known many cheap razors turn out very well, and even admit of being often re-set.

The material of which a razor is made is not very expensive, but with cheap razors the common failing is that they are imperfectly or improperly tempered, and under such circumstances can never maintain a fine edge even during one shaving. The size of the razor is a matter of importance, a large razor being much more likely to wound the face than a small one. We should recommend, however, as most judicious, to buy a razor of size and weight corresponding, as nearly as possible, to that to which you are accustomed; as a razor of strange size, shape, or weight, will in all cases be found very inconvenient to use for any length of time. The cutting edge of the razor is only two and a half inches long, while the length of the instrument is no less than seven inches and three-quarters. The only part of the blade of the razor which is of any use for shaving is the inch and three-quarters farthest from the handle. The rectangular-pointed razor is the most convenient for shaving, although the rounded point wears a more finished and better appearance. In shaving the upper lip the superior convenience of the rectangular-pointed razor is best proved, for the rounded end of the razor is greatly in the way when removing the beard from the angles between the nose and upper lip. With regard to the shape of the handle, that possessing rather acute edges is to be preferred, as such shaped handle is less liable to turn and

slip from the grasp of the fingers, which are often cold when shaving. The material of which the handles of razors are constructed is of little importance; but it may be remarked that the best razors are generally fitted with ivory handles, either white or black, while the commoner class of razors have handles of horn dyed black and pressed; some few being of mottled horn, to imitate tortoiseshell, but these now are rarely met with.

The Stropping, Sharpening, and Putting by of Razors.—A keen edge may be preserved on a razor for some time by the use of the strop, and stropping the razor each time after it has been used and before it is put away, is necessary to keep it in good condition. For some kinds of beards, however, where the beard is not thick, and the extent of surface not great, to strop well a good razor once or twice a week has been found sufficient; but with regard to the time a razor will last sharp without stropping, much depends on the manner in which it is wiped after use, and likewise upon the angle at which it is held whilst shaving; direct contact of the edge of a razor against anything being sure to turn it. A razor should never be wiped upon paper, but upon a piece of wash-leather, or a napkin made of soft linen, and held quite flat upon its side. The razor must be wiped perfectly dry before putting away, and why it is so essential that perfect dryness should be secured is because the teeth being so beautifully fine, as we have described, are extremely subject to rust. For this reason it has been commonly directed that the razor should be dipped into hot water after shaving, so that the heat remaining in the steel may serve to evaporate and dry up any moisture which remains after wiping. A precaution, too, of putting the razor in front of the fire to air, before putting away, has been adopted, but such practice is needless.

To effect good stropping considerable art and skill are required. A razor cannot be stropped well by a cramped hand or arm, as stropping requires a free, light, brisk action, and not a heavy stroke. If it be performed unskilfully it does more harm than good, since, instead of giving an edge, it destroys the edge. If the razor be turned on the cutting side, although lifted from the strop, its edge will be dulled. The razor should be laid upon the strop, and drawn from heel to point, then turned by resting on its back as it moves round, without letting it leave the strop. In turning, take care to keep the back of the razor down on the strop, changing the position of the hand and arm, which should act freely as high as the elbow. When flat on the other side it should be again drawn from heel to point the other way. If the edge, as the razor lies flat on the strop, face yourself, the blade should be drawn from you; but if the back face you the razor must be drawn towards you. These directions suppose that you shave from point to heel; should you shave from heel to point, the razor must be drawn, in stropping, from point to heel. It must always lie obliquely when on the strop, otherwise the edge will not be keen. It is this obliquity in stropping which imparts the fine cutting edge, which in a razor is always greater than in any other instrument. As we have already stated, the razor, though the sharpest cutting instrument known, is nothing more than a fine saw. The effect of the hone is to make the teeth of this saw finer and sharper; that of the strop is to make them still finer, sharper, more uniform and smooth, as also to remove the long or pointed teeth which project beyond the others, and, as seen through a magnifying lens, have the appearance of angular projecting steel bars. Many such teeth are left by the hone, and give great anguish if not removed. Unless the strop be used in the manner described, and the razor turned upon its edge, notwithstanding it be taken from the strop prior to its being turned, the teeth, instead of being made fine, sharp, and even, will be bent, and what is termed a "round edge" will be produced, by

no means tending towards easy shaving. None but very hard, wiry beards can be removed by razors fresh from the hone, pain generally accompanying the use of such instruments. After razors have been set they require frequent stropping to render them fit for use. The razor should always be stropped subsequently and never prior to shaving; for when the blade has been used there inevitably remains upon it a little moisture, which, if not removed, will doubtless occasion rust. Nothing removes all moisture from the keen edge of the razor so well as the strop. Moreover, the warmth retained by the blade after use renders the steel, which it expands, more sensitive to the stimulating power of the strop. The repose, too, of the razor after stropping, is considered to be advantageous to its cutting qualities. The palm of the hand is recommended by some barbers as the best strop, but such is only a fancy, the palm of the hand being at best only a makeshift. It frequently happens after a considerable period of use that the strop becomes notched or uneven, and should then be cast aside as unfit for use, since stropping a razor once on such an instrument will inevitably destroy its teeth, and the only cure will be to have the razor set afresh. While, however, the strop remains free from cuts, dirt, or destruction, the paste on its sides requires to be occasionally renewed. We must warn our readers that if they desire to preserve either their razor or strop, they should be most scrupulous in placing the strop back, after use, into its scabbard, otherwise dust, or even grit, is sure to adhere to the paste with which the strop is prepared.

The hone, strop, and shaving soap will be considered in another article.

COOKERY.—LXXII.

VARIOUS SEASONINGS.

Seasoning for Soups.—Take eight parts of parsley one of thyme, and one part of bay-leaves; dry them, and crumble them together into a powder. Some of this, added to broths, makes an excellent seasoning.

Curry Powder for Soups, &c.—This preparation consists of three parts turmeric, and the same quantity of coriander-seeds; one part each of mustard-seed, black pepper, and ginger; half an ounce of the seeds of the lesser cardamom, and one quarter of an ounce each of cayenne and curry. Reduce them separately to powder, and then mix them altogether.

Liquid Essence of Curry may be prepared by putting three ounces of the above powder in one quart of strong vinegar, for ten days or a fortnight, and then straining off the clear liquid.

Seasoning for Force meat, and for Game and Meat Pies.—Take two parts of bay-leaves, and the same quantity of thyme, one part each of rosemary and marjoram, four parts of nutmeg, the same quantity of cloves, two parts of black pepper, and one of cayenne pepper. Dry the herbs carefully, taking care not to employ so high a temperature as to dissipate the essential oils they contain. Afterwards powder the other ingredients, mix them all together, and pass the powder through a sieve. This powder is usually kept mixed with four times its weight of salt. When mixed with the salt in this proportion, one ounce will be found sufficient to season three pounds of forcemeat.

Seasoned Vinegar for Salads.—Dry very carefully, and reduce to coarse powder, three ounces each of shallots, tarragon, savory, and chives, with one ounce each of balm and mint. Put the powder in a gallon of strong vinegar for a fortnight or three weeks, and then strain it for use.

Concentrated Essence of Celery for Soups, &c.—Put, in a well-closed bottle, one part of celery-seed, crushed in a mortar, in three parts of rectified spirits of wine, for

fourteen days, and strain well through calico or filtering paper.

Essence of Anchovies, for flavouring Sauces, &c.—Clean and remove the bones from one pound of anchovies, beat them into a pulp, and pass the soft portion through a sieve, so as to separate the flesh from any small bones, &c. Put those parts of the pulp that will not pass through the sieve into a pan with the bones, and boil them in a pint of water for a quarter of an hour, and then strain. To the clear fluid add two and a half ounces of flour, and the same quantity of salt, and add the soft portion of the anchovies that passed through the sieve. Boil them together at a moderate heat for a few minutes. Then take the vessel from the fire, and add a quarter of a pint of strong vinegar. Essence of anchovies should be kept in small bottles, with the corks tied over bladder, and dipped in melting sealing-wax to render them airtight. The quantity of materials directed to be used will produce three pounds of the essence of anchovies.

Another kind of Essence of Anchovies.—Remove the bones from three anchovies, and beat them into a paste with four green chilies, or a small quantity of cayenne pepper, and two shalots. Then mix them with a gill of walnut catchup, and half a pint of mushroom catchup, and preserve in well-closed bottles.

Chutnees.—Roast some apples, remove the pulp, and colour them to resemble a tomato, by means of beetroot and turmeric. Put the pulp into a pan, and simmer it with a tablespoonful of chili vinegar, a shalot, head of garlic, some salt, and a small quantity of cayenne, until it becomes of the consistence of thick cream. Preserve the chutnee carefully in small bottles, well closed.

Seasoned Vinegar for Indian Pickles.—To season vinegar for this purpose, the following are required:—Shalots, ground mustard-seed, and bruised ginger, two ounces of each; mace, one ounce; a teaspoonful of cayenne; and a root of horse-radish, cut into slices. Put the ingredients into a vessel with six pints of strong vinegar and half a pound of salt, boil them together for fifteen minutes, pour them while hot into a stone jar, and cork the mouth of the vessel securely.

Kitchener's Essence of Capsicum.—This is prepared by digesting one ounce of cayenne in one pint of rectified spirits of wine, or brandy.

Essence of Cloves.—Oil of cloves, one fluid ounce, dissolved in one pint of rectified spirits of wine.

Seasonings for Kitchen Use.—Kitchener's spice for ragouts is a composition of mustard, grated lemon-peel, and black pepper, half a pound; cayenne pepper, two ounces; nutmeg, half an ounce; ginger and allspice, one ounce; dry salt, one pound. All the articles are to be separately powdered, and well mixed together. It should be preserved in a well-stoppered bottle, or canister, kept in a dry place. A very useful mixed spice for flavouring soups, gravies, and similar articles of cookery, may be prepared with two pounds of black pepper, one pound of ginger, and half a pound each of nutmegs, allspice, and cinnamon, one ounce of cloves, and three pounds of dry table-salt, finely powdered and ground together in a mortar. Kitchener's seasoning for flavouring soups consists of thyme, parsley, winter savory, and sweet marjoram, of each two ounces, and one ounce each of yellow lemon-peel and sweet basil. These ingredients are to be carefully dried, and powdered, and then well mixed together. The composition for flavouring pastry known as "Kidder's sweet spice" is prepared with equal parts of cloves, mace, nutmegs, cinnamon, and sugar. The materials are to be ground separately, and well mixed together. French spice for flavouring sausages is composed of five pounds of black pepper, two pounds and a half of ginger, one pound of nutmegs, half a pound of aniseed, one pound of cloves, and half a pound of coriander-seeds, ground together.

Kitchener's Essence of Ginger.—Grated ginger, three parts; grated fresh lemon-peel, two parts; weak spirits of wine—half rectified spirits of wine, and the rest water—thirty parts. Digest together for a fortnight, and then strain or filter the clear liquid.

Essence of Apples.—This is prepared by dissolving an ounce of the artificial oil of apples in about one pint of rectified spirit.

Concentrated Essence of Lemons for flavouring Pastry and Confectionery.—Digest half an ounce of the fresh rind of a lemon in eight ounces of rectified spirits of wine, for fourteen days. Then filter the essence, and add one fluid ounce of recently prepared oil of lemons.

Essence of Cloves for Confectionery and Pastry.—Dissolve half an ounce of fresh oil of cloves in half a pint of rectified spirits of wine.

Essence of Allspice, for the same purposes, is prepared in a similar manner, with oil of pimento and rectified spirit.

ODDS AND ENDS.

Spiced Salt.—Take two parts of grated nutmeg, the same quantity of powdered cloves, and one part each of allspice, powdered pepper, and basil; all the ingredients to be well mixed with two hundred and twenty-five parts of salt.

To repair Amber Articles when broken.—Pieces of amber when broken, may be joined together by a solution of that substance in chloroform. The parts to be joined, should be perfectly free from grease, and made slightly warm before applying it.

To prevent Broth from turning Sour.—Broth may be preserved in a good condition for some days, by taking care when first made to skim it well, and strain it, so as to remove every portion of fat from its surface. The broth should be kept in an uncovered vessel in a cool place. In summer the broth should be strained daily, and poured into a clean vessel.

To soften the Skin and improve the Complexion.—Mix a little flowers of sulphur in afternoon milk—about a wineglassful. Let it stand all night, to be used before washing the next morning. The milk only is to be applied to the skin, without disturbing the sulphur. It must not be used when kept longer than the morning.

What to do with Stale Bread.—When stale bread has become so hard that it cannot be eaten, it should be grated into coarse powder, and preserved in wide-mouthed bottles or jars. When kept well covered up, and in a dry place, it will keep good for a considerable time. Bread thus powdered will be found very useful for the preparation of puddings, stuffings, and similar purposes.

How to preserve Butter.—Expose the butter to a gentle heat in a metal vessel; when it melts, a quantity of impurities will fall to the bottom of the vessel, and a scum will also rise to the surface, which must be carefully removed. The heat of the fire must now be increased until the butter begins to boil—the scum being continually removed, and the butter stirred to prevent the impurities at the bottom of the vessel from burning. When no more scum rises to the surface of the butter, the boiling must be stopped, some salt added, and the melting butter allowed to become so cold that it no longer burns the finger. Then the clear butter is poured off into jars, the mouths carefully closed, and preserved for use.

To detect Adulteration of Arrowroot by Flour.—Mix sixteen grains of the suspected starch in one hundred and eighty cubic inches of water, and apply heat to the liquid, until it nearly reaches the boiling point (212° Fahr.), and stir the liquid continually. When the stirring ceases, if the arrowroot is pure, the liquid will not froth on its surface; but if it has been adulterated with flour, a considerable amount of froth will be immediately produced.

RIDING FOR LADIES.—IV.

SHYING is generally produced by nervousness ; it is best to slacken the rein on the side the horse shies, turning his head away as much as possible from anything that terrifies him, and diverting his attention towards something else ; a word or two of encouragement is of the greatest value. The wisest mode in all these emergencies is really to turn the horse's attack on himself—to make him persist in doing what he shows a disposition to do. Still, in cases of terror, it is most advisable, where possible, by encouragement, to let a horse see the groundlessness of his fears. In time his peculiarities are soon learnt ; and where it is possible it is best to prevent his seeing what alarms him.

A lady should never knowingly ride a horse given to stumbling ; occasionally, however, any steed may by accident stumble. When such a thing occurs, raise his head by a quick action of the hand, throwing the figure back. It is no use whipping him, or he will be nervous, or maybe restive, the probability being that the trip has already made him nervous.

Kicking is a still more serious failing. In such a case, hold the reins in both hands, the body upright, the shoulders back, the waist forward : the danger being that the rider may fall backwards and pull the horse on to her. To prevent this, slacken the reins as he rears, bend forward, throwing the weight on his shoulders, and as his fore feet touch the ground, apply the whip smartly, or attempt to pull him round, which will also prevent his rearing, if inclined.

A horse kicking requires to be held well in hand. If his head be well up, you prevent his doing much harm with his heels. If his head be already down, the rider must hold the reins so tightly that he cannot throw himself down, and by moving her body backwards prevent herself being pitched over his head, giving him a sharp turn or two round when practicable, being careful that, in preventing his kicking, she does not lead him to rear ; slashing the shoulder well for kicking, and behind the saddle for rearing.

She should, in her course of instruction, be put upon a steed that has been taught to kick ; she will then learn that she must keep his head up and divert his attention, pressing her legs well against the crutches. In rearing, the rider is much at the mercy of the horse ; if he persist, she should lay firm hold of his neck or mane.

To dismount, first see that the habit is quite disentangled, removing the right leg from the crutch, the left foot from the stirrup. The right hand holds the reins until they are dropped on the horse's neck ; the habit must then be slightly drawn up in front, so that in alighting it clears the ground. Many women can glide easily unassisted from the saddle. If that is not practicable, both the hands are laid lightly on the shoulders of the groom or gentleman to whom the duty falls, and this makes the descent easy and more graceful than when, as often happens, the assistant places his hands on her waist and so helps her to spring. She must necessarily bend her knees and suffer her figure to be easy and flexible. Practice is essential here as in the other points we have entered upon.

We have throughout avoided all technicality in our directions. The military aid book is one which ladies are not much likely to affect ; riding with them is an exercise and a pastime.

The terms "aids" and "defences," it is well to know, are applied to the movements of the hands, body, and legs, whereby the rider sways the horse or assists him to carry out her wishes, such as giving rein when he is to advance, tightening it when he is to stop, these accompanied by simultaneous movements of the leg and body, and often of the whip.

In learning, the pupil should be taught to mount a variety of horses, and so accustom herself to many paces and tempers ; but possessed of a horse specially her own, she should devote herself to ascertaining his peculiarities : for a course of action suited to one animal is not always advisable for another—gentleness and kindness being among the most powerful influences. A steed that wants much correction is unfit for a lady's use.

Once, however, allow him to gain the mastery, and comfort will be altogether sacrificed. Firmness and determination are as much needed in the management of horses as children.

Patience is also a very necessary virtue. Riding well will not come all at once, but early failures must not dishearten, and practice will lead to flexibility and grace. Those who have already received good lessons in the gymnasium will find these adjuncts come all the easier.

A disposition to indulge in groundless fears should be at once suppressed ; but nerve is very much a matter of health : as that improves, by means of healthful exercise, courage will increase.

It is hardly possible to begin to ride too early. The best riders are those who have begun in childhood.

Begin early and learn thoroughly—once well learnt is twice learnt. And so with this old adage we bring our instructions to a close.

GINGER CHAMPAGNE.

AMONG the Melbourne specifications of patents we find the following invention, the object of which is to produce a wholesome and agreeable drink having a flavour similar to champagne, and the operation may be thus described :—To manufacture, say sixty gallons, there are first placed fifty-eight gallons of cold water in a copper boiler, to which are added one hundred and fifty-eight pounds of the finest raw sugar, and five pounds of bruised ginger. The mixture is then heated, and allowed to boil gently for about half an hour, during which time the scum rising from the surface must be taken off. After this has been done, the liquor must be drawn out of the boiler, and placed in coolers ; and after the temperature has been reduced to about blood-heat, it is placed in casks, in which the following articles have been previously put, namely, thirty-six pounds of raisins, cut into small pieces, six dozen of oranges, and six dozen of lemons, sliced thin. There must then be added to the liquor in the casks one quart of yeast, which, with the liquor, is allowed to ferment. After the fermentation has ceased, there is added to the liquor one gallon and a half of proof spirits, and six ounces of isinglass, for the purpose of fining the liquor ; eggs may be substituted for the isinglass, which, however, is preferable. The whole is then mixed well together, and the cask fastened up for about one month, when it is racked off into another cask, and bottled, being then ready for the market. The predominating flavour of this liquor will be ginger and champagne, and it is therefore called "ginger champagne." But the use of the ginger may be dispensed with altogether, and the quantity of oranges increased ; that is, eighteen dozen instead of six dozen. The drink will then be "orange champagne." Or, instead of increasing the quantity of oranges, about three times the quantity of lemons may be used, in which case "lemon champagne" will be the result.

PUMICESTONE FIRES.

FOR bedrooms where a steady, continuous, but not particularly strong fire is required, one of pumice-stone is preferable to an ordinary fire. A good method of con-

struction is to introduce three argand gas-burners into the bottom of the grate, which is then filled up with lumps of pumice-stone. A couple of shillings will buy enough for any grate, and it will not waste or burn away. One, two, or all three of the jets of gas can then be turned on as a smaller or larger fire is required. The pumice-stone soon becomes of a red-heat, and glows like actual coals, and the gas-flames play prettily about it. The perfect safety of pumice-stone fires greatly recommends them for bedroom use, as does also the fact of their perfect cleanliness, no dust, smoke, or ashes being caused by them, which good housewives regard as a point of great importance. In summer rooms also, where an occasional fire only is required, they may be found a great convenience.

HIGHWAY LAW.

11.

IN the case of common highways (by which term we include bridges), the surveyor, or other person chargeable with the repairs, can be summoned by a justice of the peace, upon the oath of one credible witness alleging that the road is out of repair, to appear before the justices at some special sessions for the highways. Thus, if the question be one of repairs only, and does not turn upon who ought of right to repair the road, the justices must either appoint a proper person to view the place in question, or go and do it themselves; and if they are satisfied that the highway is really out of repair, they can order the necessary repairs to be done, and inflict a penalty on the offenders. By the "Public Health Act, 1875," the powers and duties of surveyors of highways are vested in "urban authorities," which term includes the Corporation of a town, Improvement Commissioners, and Local Boards, and these now execute the office of Surveyor of Highways, for by the Act referred to all powers, authorities, and liabilities, and all arrangements as to lighting, paving, and the acquisition of new roads, are given them. The Surveyor of Highways thus becomes the agent for the authorities for carrying out their duties, and no claim can now be maintainable against him.

In the case of a turnpike, the proper person to be summoned and proceeded against in the first instance is the treasurer of the turnpike road, who must be summoned to appear before the justices by two of their number (one magistrate alone not having power to do so), in order to ascertain whether they have sufficient funds to enable them to repair the road, and if they have, they can order them to repair it, and if they disobey these directions costs may be awarded against them.

But if, on the other hand, the party charged before the justices denies his liability to repair, the magistrates must direct an indictment to be preferred; and they have no discretion in the matter, except so far indeed as to whether the indictment shall be preferred against the parish, or some other party; and should they refuse to act as above, a mandamus can be issued to compel them to make the necessary order. But by the Act before mentioned the urban authorities may, by agreement with the trustees of a turnpike road, undertake the maintenance, repair, and cleansing of such road, and they will then have power to remove any turnpike-gates, or place others, as they may decide to be necessary.

The mode by which funds are collected for the repairs of highways is by the highway rate, which next claims our attention.

Highway rates, then, are assessed and levied on all property liable to be rated for the relief of the poor. Every rate must be signed by the surveyor, allowed by two justices, and published in the same manner as poor-rates, and may also be enforced in the same way. They

must not exceed tenpence in the pound at any one time, nor two shillings and sixpence in any one year, unless with the consent of four-fifths of the inhabitants; and a meeting must be specially called for the purpose of making such a rate. If the district includes several parishes, separately maintaining their own highways, the local board cannot make separate rates for each parish, but must raise funds by a general district rate.

These local boards can exist in any parish where the population exceeds 5,000, and are constituted for the better management of the highways therein. It is not compulsory that this should be done, the matter must be settled by the inhabitants at a vestry meeting called for the purpose; and should such a resolution be carried—and a majority of two-thirds of those present is necessary to do it—they must elect a number of householders not exceeding twenty or less than five, who reside in and are rated for the poor of the parish, to serve as surveyors, and act in the capacity of a highway board. They must appoint a clerk, a skilled person to act as a surveyor, and a collector of rates, who are all to be paid reasonable salaries. A treasurer must also be appointed; and in order to guard against loss, a security must be taken from him. The whole management of the highways is vested in them as a board, and they have complete control over them.

Besides these local boards there are also what are termed district highway boards, which are formed in the following manner:—Any five or more of the justices of a county may, by writing under their hands, require the clerk of the peace to add to, or send with the notice required by law to be given of the holding of the courts of general or quarter session, a notice that at the court about to be held there will be a proposal made to the justices to divide the county, or some part thereof, into highway districts. Notice must also be sent to the churchwardens of every parish mentioned in the notice. On the assembling of the justices they may make a provisional order to constitute a district, but this shall not be of any validity unless confirmed by a subsequent meeting of the justices assembled at quarter sessions. A district highway board is then appointed, which consists of the waywardens of every parish, and the justices of the county within the district. It is a body corporate, having a perpetual succession and a common seal; it likewise has power to hold lands. It is bound to keep the roads in its district in proper repair, in the same manner as a local board; and in case of a complaint being made against it for non-repair, the only difference in the procedure against it and that of local boards and parishes is, that in this case the justices must summon the waywardens of the parish in which the road lies, as well as the board itself.

With a few remarks touching upon the question of nuisances committed upon highways, and the mode of their removal, we will conclude this subject.

In general, mere temporary obstructions are not indictable, and notice must be given to the occupier of the premises where they exist to remove the nuisance before any one can interfere; should he, however, refuse to do so, he can be proceeded against. But all injuries and permanent obstructions to highways are nuisances at common law, and can be indicted as such without any previous notice. Public exhibitions which cause a crowd to collect to the hindrance of traffic are indictable. But when a place has been used as a public fair or market for above twenty years, to which persons have resorted for the purpose of there exposing articles for sale, they shall not be liable to be indicted for a nuisance for obstructing the highway, if fairly engaged in using the place as a fair or market. A cart may be unloaded in the street for the purpose of conveying goods into an adjoining house, if it be done with promptness; but if there be unreasonable delay, it is a nuisance, and indictable.

So, too, as to the repairing of a house, the public must

submit to the inconvenience occasioned necessarily thereby; but if this inconvenience is prolonged for an unreasonable time, the party may be indicted.

And by the Highway Act, no shrub or tree shall be planted on any carriage or cart-way, or within the distance of fifteen feet from the centre of a highway, by the owner of the soil or other person; and if he does not cut them down, grub them up, or carry them away within twenty-one days after notice is sent to him by the surveyor to do so, he is liable to forfeit for every offence the sum of ten shillings.

And by the same Act, no steam-engines, unless within a building, are to be erected within twenty-five yards of the centre of the highway; no person must ride on or injure the footpaths thereon; railways must maintain gates at the point where they cross the roads; no one must fire guns, or let off fireworks, within fifty yards of the centre of the highway; and, in fine, no one must obstruct the traffic thereon, either in manner stated above or in any other way, under a penalty of forty shillings.

TEXTILE FABRICS IN DOMESTIC USE.

III.

IN selecting a cloth, one of the first qualities to be ascertained is the closeness and fineness of its texture. In material of an inferior kind, the texture is open and coarse, a defect which can be detected in a moment by holding it up to a strong light; if the light passes through it, the cloth cannot be of first-rate quality, and will give way, and become full of holes after a little use. A really good cloth, on the other hand, is so closely woven and so compactly felted together as to be perfectly impervious to light; and this will of course wear better than the first-mentioned. The thickness of the material will influence this to some degree; but a thick cloth is not always a good one. We should prefer one of a moderate thickness, but which was opaque. Softness is an essential quality, and is as important in this fabric as in the case of silk, while it may be tested for in the same manner, namely, by gathering up the folds, and observing the angles which they assume. In the best cloths, especially those which are black, the colour is some guide as to quality: those of the finest character being of best colour. The smoothness and perfect equality of surface must also be observed, as the common varieties are not brought to the same high state of finish as those of closer and more compact texture, and this test is applicable to both sides of the fabric. In a really first-rate material there is often but little difference of finish between the face and the back surface. This is an important quality with respect to economy; as when the front surface is slightly worn or soiled, the garment may be turned, when it will be nearly as good as when first made up. When purchasing a cloth, inquiry should always be made as to its having been well shrunk, as, if this has not been properly effected, a shower of rain will probably destroy its beauty, and spot it all over. A word of caution may here be added with respect to a base imitation of cloth known in the trade as "shoddy." This is frequently well got up, and finely finished; but it is utter rubbish, and thoroughly unserviceable. It is composed chiefly of fragments of old cloth felted on to a coarse woven texture, and may be detected in a moment by tearing the fabric in the direction of its length. Another good test is that of attempting to draw out the fibres at the end of the piece. A really good cloth will yield fibres of some length; but it is utterly impossible to draw these out of shoddy, on account of their shortness. Where a cloth of extreme cheapness is shown to the intending purchaser, this test should always be applied; as it is only reasonable to suppose that a fabric composed of such short fibres (which

resemble dust in their raw state) cannot be so strong or firm when made up as that in which the longer ones are used; as these latter from their greater length are more firmly interlaced, and consequently offer greater resistance to any tearing strain.

With regard to the preservation of cloth, very little need be here said, as almost every housewife knows what is needful in this respect. Two hints, however, may be offered. In the first place, all dust and dirt should be carefully removed before the clothing is placed in store, or the impurity will speedily work its way into the texture of the cloth, and destroy its brightness and beauty. The second point is not, perhaps, so carefully attended to, although it is equally important; namely, that of perfectly drying the cloth before putting it away. All dampness should be removed by drying before a fire, or mildew will most certainly ensue if the material be left for any length of time. When placed in a drawer, all the folds which can be removed should be pressed out; or the cloth will, when required for use, be full of awkward-looking creases, which it will be difficult to remove.

Cloth may be washed; but this is a somewhat dangerous process, and it is better to simply cleanse the surface by means of a tuft of the same or a similar material, which has been dipped in a weak solution of liquor ammonia in water. It may also be re-dipped; but as this process requires some skill and practice, it had better be confided to the professional dyer. After undergoing either of these operations, the cloth must be pressed with a hot flat-iron; or as the tailors call it, "goosed," and this should not be effected upon the bare surface of the cloth, but a piece of linen or calico placed between it and the iron.

HOUSEHOLD DECORATIVE ART.—XLVII.

TEMPORARY DECORATIONS FOR AN IMPROMPTU BALL OR CONCERT ROOM.

IT frequently happens in families where festivities are rather the exception than the rule, that it is necessary to convert a room ordinarily devoted to merely useful purposes, into one of an ornamental character. In the country this is more especially the case, where a school-room, a hall, or sometimes even a barn, is necessarily made to do service as a ball-room, a concert-room, or a place for private theatricals. We propose showing how such a room may be tastefully decorated at an insignificant cost, in such a manner as we have proved by experience to be at the same time practicable and effective.

Let us suppose that it is desired to decorate a large room presenting nothing beyond four bare whitewashed walls. We shall show how in a few hours, and at the cost of a few shillings, the lower portion of the sides of this room may be made to appear as though hung with crimson drapery, and the upper to be painted with an effective diaper; how the walls may in appearance be divided into compartments by marble pilasters; and how a temporary fountain may be erected at one end, rising above a bank of flowers and evergreens. We shall, moreover, give a number of useful practical hints for the minor decorations which may be required in fitting up such a room.

In order to effect these decorations, the first thing to be done will be to divide the walls into upper and lower portions; the latter should be about six feet high, or rather more or less, according to the dimensions of the room. The upper portion we first propose to decorate in diaper by means of stencilling.

An effective pattern for stencilling is that shown in our illustration of a portion of wall when decorated (see Fig. 1), or more in detail as working copies, in Figs. 2 and 3; it consists of a heraldic lion and a flower. For colouring the walls with these, stencil-plates may be made of stiff

brown paper or cardboard, well soaked with linseed oil to prevent its being subsequently softened by moisture while in use. The stencil-plate is made by cutting away those portions which are to be represented by colour on the walls, and which are shown light in our woodcuts; small portions are left at the juncture of detached parts, as at the legs of the lion, for the purpose of holding the plate more firmly together. The patterns can be enlarged to scale and then cut out. The stencilling is done by merely holding or fixing the plate with tacks or drawing-pins against the wall, and dashing on the colour with a good-sized brush. The colours proper for the purpose are to be bought for a mere trifle. Venetian red for the lions, and "celestial" blue for the flowers, would look exceedingly well, or if a little extra expense were no object, more brilliancy might be obtained by using vermilion and a better kind of blue, say ultramarine. These colours may be prepared for use by grinding them with a stout knife on a piece of stone or slate. If there is any danger of the work being rubbed, the colours may be fixed securely by mixing them with water in which a little glue has been dissolved to serve as a size: but as in our proposed decorations the stencilling will usually be placed so high as to be secure from injury, it will generally be sufficient merely to mix the colours with a little beer or milk. It is well before commencing to stencil, to measure and mark out upon the walls the places where the central points of the figures in the pattern should fall. This may be easily done, and the perpendicular of the pattern preserved, by measuring off the distances at which the rows of figures are to occur just beneath the ceiling, then dropping a plumb-line, which has been previously rubbed with charcoal, springing it with the thumb and finger, and measuring off the perpendicular intervals; the superfluous charcoal may be dusted off afterwards. It is then easy to lay the stencil-plate at once in its position against the wall; one stencil-plate of each figure will be sufficient, as they can be freely moved on from place to place. It is better to commence the operation of stencilling against the ceiling, and to work downwards, to avoid splashes or injury to the work as it proceeds. Stencilling, which is the reverse of printing, and consists of applying colour through an opening instead of taking an impression from a raised surface, is the most easy and expeditious of all kinds of decoration.

The upper portion of the walls being thus stencilled, the next proceeding will be to cover the lower portion, that below the six-foot line, with imitation drapery. Nothing will look better for this than a common wall paper, which has a simple pattern in two shades of crimson, such as may be bought at one penny per yard. This is to be pasted against the wall in the ordinary manner, and when dry, the effect of drapery may be given to it by mixing lamp-black in the same manner as the colours for the stencilling above, and with a small brush marking bold and distinct lines upon the paper, as shown in Fig. 1. The illusion will be completed by pasting a bordering along its top; one of crimson and yellow, with gold studs at intervals, is sold at one penny per yard, which would look well; and a second border of yellow paper along its base, which may be picked out with a few strokes of the brush and lamp-black to give the appearance of fringe.

As we have now covered the whole of the walls, we will next divide them into bays or compartments by pilasters. This we can do by hiring or borrowing a number of battens, which are pieces of timber about six inches wide and two and a half thick, from the nearest timber-yard. These are to be covered by pasting marbled paper over them, which, for greater security, may also be tacked down at their backs; or their fronts may be covered with paper on which an ornamental pilaster is printed, like

that given in Fig. 1, which may be bought in the Lowther Arcade and elsewhere. They are then to be placed against the wall at stated intervals, and each may be fixed with two strong nails at top and bottom. A wreath of evergreens fastened round the top of one of these pilasters makes a pretty capital, and conceals its junction with the ceiling, while long tendrils of ivy tied together, falling down at each side, and held fast by a tack or two, will conceal any imperfection in its juncture with the wall. If ranges of seats are to occupy the whole of the sides of the room, no bases for these pilasters will be needed; otherwise their bottoms may be hidden by pedestals surmounted by plaster casts. We have seen pedestals for this purpose improvised from common beer-barrels, white-washed over, and wreathed with evergreens; even a number of boxes will answer the purpose; or four pieces of board nailed together, with a top, will make a good pedestal. The pilasters may be further decorated by fixing upon them, as shown in our illustration, plaster brackets, or those known as "ivy brackets," described in our article on "Christmas Decorations," surmounted with busts or vases for flowers. A kind of ornamental cornice, composed of mottoes, neatly cut out of coloured paper, may, if it is desired, be made to run from pilaster to pilaster, just beneath the ceiling, and two festoons of evergreens between each pair of pilasters, looped to a nail in the centre, from which a basket of flowers or a paper lantern is suspended, would have a very pretty appearance.

Few decorative objects are more pleasing and refreshing in a hot and brilliantly lighted room than a fountain. A temporary fountain, though its erection may at first sight appear to involve much trouble and expense, is really a very simple affair, provided that a sufficient supply and force of water be at hand. For the basin of such a fountain, a shallow, circular tub, or any similar vessel, will suffice. This being placed in its position, we can take such a length of india-rubber tubing (cost threepence per foot) as will reach to it from the nearest turncock which will supply water, and another length sufficient to convey the waste water to the nearest drain. If these pipes pass through the room in any part where they may be in danger of being trodden upon, they must be protected by a board being placed over them. In a temporary ball-room, the seats for the musicians might well be placed behind the fountain, and under these the pipes might easily and safely be laid. The india-rubber tubes may be made to bend over the side of the tub; this will not interrupt the flow of water, since they will act as syphons. A piece of leaden gas-tubing to throw the jet through a small hole in its upper end, may be fixed upright in the centre of the tub, and connected with the india-rubber tube, which, if the two are of the same size, can be done by simply pulling the india-rubber over the lead. A piece of wood or iron fixed upright in the tub will be useful to support the leaden tube (see Fig. 4). The mouth of the waste-pipe must be fixed at the height above which the water is not intended to rise. The jet-pipe may be concealed by rockwork, or by fastening round it a few sprigs of evergreen, and the tub may be converted into a pretty basin, by placing rockwork round its sides, and clean gravel over its bottom on which a few shells may be scattered; this will hide the tube. Externally, flowers or shrubs, in pots, must be placed round the tub, in the manner shown in the illustration, page 33, large ones standing as high as its edges being nearest the tub, and decreasing gradually in size. Sawdust must be spread over and between the pots, so as to fill up the interstices, and when a covering of green moss has been placed over the sawdust, hiding the edges of the tub, the whole will have the effect of a green mossy bank from which plants are springing, sloping up to the margin of a pretty, natural-looking fountain, which will be rendered

complete by placing in it some gold or silver fish. If a basin of plaster of Paris or other material, such as that shown in our illustration, can be readily procured, it may be used with good effect.

In default of gas, chandeliers may be made of wooden hoops or crossed laths, with tin holders for candles, at their ends, hung from the ceiling and decorated with evergreens; and tin sconces, also surrounded with ever-



Fig. 2.

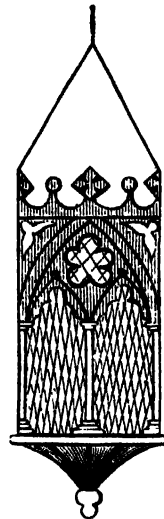


Fig. 7.

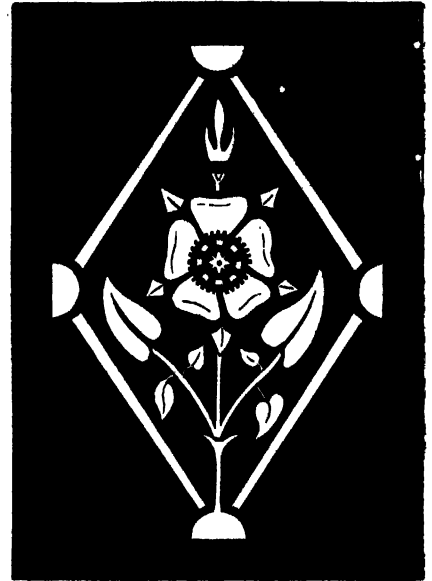


Fig. 3.

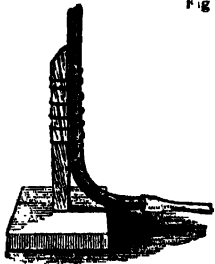


Fig. 4.

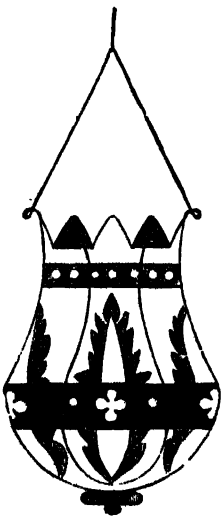


Fig. 6.

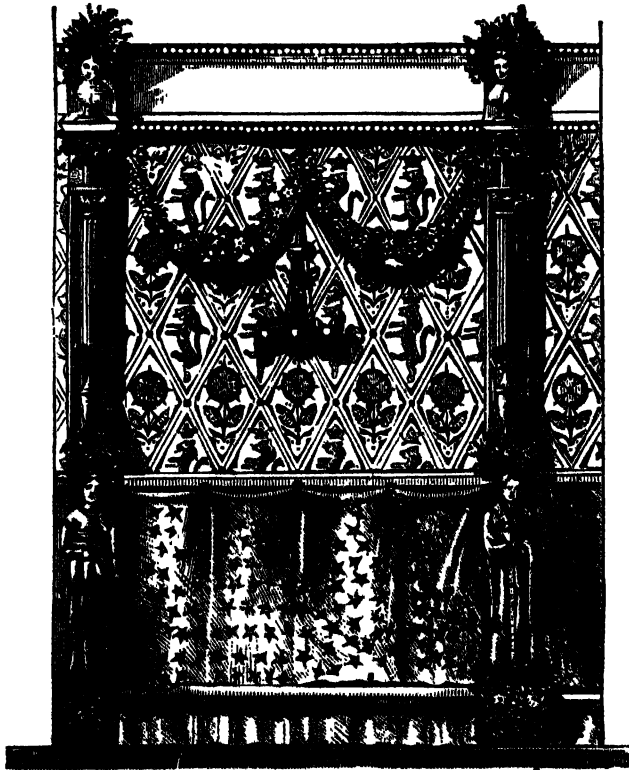


Fig. 1.

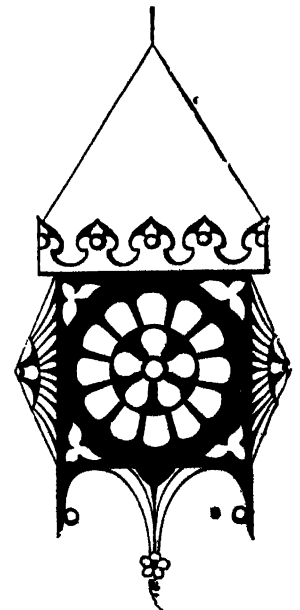


Fig. 5.

We have now to consider in what way our ball-room shall be lighted. If gas be laid on, the most ordinary and commonplace of pendent gas-burners may be made pretty by twisting evergreens and flowers round them; or greens, may be hung on nails in front of the pilasters. Candles, however, have a tendency to gutter and drop grease in the constantly-varying currents of air in a ball-room, and paraffine lamps on brackets are more cleanly

though they have a far less agreeable odour. But all difficulties, connected with candles may be overcome, and much prettier effects produced by the use of paper lanterns. These may be made of any shape, by first forming a framework of wire, placing inside holders for the candles, and pasting tissue-paper of various colours over the skeleton, as fancy may dictate. Large square or octagonal lanterns, Figs. 5 and 7, are made by forming the bottom of a piece of board with upright pieces of wood at the corners to support the sides. We have seen effective lanterns made by first pasting stout brown paper, perforated as shown in Fig. 5, on the wooden frame, and subsequently covering the perforation on the inside with coloured tissue-paper. Such lanterns as these, which may be made to a size fitted for holding several candles, are suitable for hanging along the centre of a room; the smaller round-bottomed lanterns (Fig. 6) look well hung between the pilasters, and connected with them by wreaths of evergreens, as shown in Fig. 1. Scarlet tape makes pretty strings for suspending these lanterns.

As the reader will see from the materials we have mentioned, the cost demanded for decorating a room in this manner will be very small indeed. Some patience, ingenuity, and time, will of course be required for it, but these are generally forthcoming in abundance on occasions when such labour is required; and the effect of a room when so decorated, though it might not pass muster by daylight, or when closely examined, would be sure to be successful when seen once only and by artificial light, and when it would have for the spectators the charms of novelty and surprise by being met with in an apartment where no ornamental features were known to have previously existed.

HOUSEHOLD CHEMISTRY.—XVIII.

THE METALS.—LEAD.

IN page 350, vol. iii., of the HOUSEHOLD GUIDE, is an article on the action of water on lead, especially in connection with domestic cisterns. We now give some further information respecting the chemical composition of the metal. Lead is a soft metal, which when pure may be readily cut with a knife. When freshly cut its surface presents a glittering white appearance, with a tinge of blue. When handled, lead stains the hands, and if rubbed on paper it leaves a dark mark. Advantage has been taken of this property to manufacture pencils of this metal for writing in note-books. When such pencils are used on paper prepared with bone-earth, or some similar substance, an indelible mark of metallic lead is produced. For the same reason, combs made of this metal are sometimes used to darken the hair, but this practice cannot be recommended.

Lead is usually obtained from the ore known as galena, which is a sulphide (sulphuret) of that metal. This ore consists of about thirteen and a half parts of sulphur and eighty-six and a half of metallic lead in each hundred parts. This metal is also largely procured from a mineral in which it exists in combination with oxygen. The ores of lead are reduced to the metallic state, either by being exposed to the action of flame in a reverberatory furnace, or by mixing it with fuel—lime and other substances being sometimes added—and subjecting it to intense heat in a blast-furnace.

When the bright surface of recently cut or melted lead is exposed to the atmosphere it soon loses its lustre, by becoming covered with a thin coating of oxide. The oxide thus formed, by protecting the metal beneath from the atmosphere, will be found to prevent its undergoing any further change for many years. This is the reason of the great durability of lead when employed as a covering for roofs and similar uses. The sheet-lead thus em-

ployed for building purposes may be made either by casting it into large sheets of the size required, or by casting the metal much thicker and spreading it out by rolling the metal between iron cylinders until it becomes of the proper thickness. The sheet-lead obtained by the first process is known as cast-lead, while that made by pressing between the rollers is called milled-lead. It is found that the cast sheet-lead is the most durable, being less liable to undergo expansion and contraction at different temperatures than that lead which has been milled, and is therefore less subject to injury when exposed on a roof to a hot sun or to extreme cold.

The lead used for these purposes should be as pure as possible, that commonly met with containing other metals, such as silver and copper. The silver, however, in these cases only exists in small quantities, for it is always removed whenever it exists in sufficient quantity in the lead to give a slight profit after paying for the expense of its separation. This is done by exposing the lead to intense heat, in contact with the air, by which it becomes converted into oxide, and any silver it may contain is left behind in a metallic state.

Pipes made of lead, owing to their durability, and to the flexibility with which they can be bent into any shape, are much employed for various household purposes; but this practice is attended with danger to the health, owing to the liability of the liquids that come in contact with them to become impregnated with that metal. This is especially the case when they are employed by publicans to convey beer or other liquids, particularly when slightly sour. When so employed, it is always necessary to throw away that portion of fluid which has remained in the pipes during the night, owing to its having become impregnated with this metal.

It has been recommended, with a view of diminishing the action of such liquids on the lead, to coat the pipes on both surfaces with metallic tin. This is done by coating them both inside and out with oil in which resin has been dissolved, and then dipping the pipes in melting tin. By repeating this process several times, a coating of tin may be obtained of any thickness. Sheet-lead, for cisterns, may also be coated with tin. This may be done by heating the metal on a stove to a temperature of about 400° Fahrenheit, and then pouring melting tin over its surface. Powdered resin is then dusted over the surface of the lead, and the liquid tin passed over every part by means of a greasy rag.

Lead pipes are found to possess considerable power of withstanding pressure—much more than might be expected when the flexibility and softness of that metal is considered. For example, a pipe one inch and a half in diameter and one-fifth of an inch thick, made of very pure and ductile lead, was found capable of supporting a pressure of 420 lbs. per square inch. It was also found to require a pressure of 600 lbs. on each inch of inside surface before it could be burst.

Lead, in combination with arsenic, is employed in the manufacture of shot. They are made by allowing the melting metal to percolate through a kind of cullender, erected on the roof of a very high tower, and fall through the air into a vessel of water placed at the bottom of the building to receive it. The metal employed is prepared by melting white arsenic with the lead. The proportions employed vary according to the purity of the lead. When good soft lead is used, three pounds of white arsenic to the thousand is sufficient; but as the most impure and cheapest lead is generally used for this purpose, eight pounds in the thousand is the proportion usually employed. The proportion of arsenic required by any particular sample of lead is learnt by experiment. When the shot are hollowed, flattened, or tailed, it shows that sufficient arsenic has not been used; but when they are lens-shaped, it proves that too much has been added.

THE ASS.

II.

IN Britain the ass is chiefly employed by the poor, but might with advantage be much more generally used than it is. Its price, as we showed in our former article, is scarcely one-twentieth of the price of the horse, and it can be kept at much less expense. To be kept well, it should be treated very much as the horse. It should have a convenient stable, and be regularly fed and cleaned.

When we remember that the climate of its native country is warm and dry, it is evident that it ought not to be left out in cold damp nights, nor should we think that anything will do for it to eat. It is very temperate in eating and drinking, consequently preserves its own health. It does not require much corn, but should have its allowance of hay daily; fresh-chopped straw will sometimes serve the male ass, but the female should always have a reasonable quantity of hay. Thistles, coarse herbage, and various weeds—which are rejected by the horse—are great favourites with the ass, consequently it can be kept at one-fourth of the expense of a horse. Pounded furze, before it blossoms, and any of the ordinary garden roots, are excellent food. All animals, including the ass, are fond of carrots, and thrive amazingly well upon them. If the ass gives the preference to any vegetable, it is to the plantain, for which it is often seen to neglect every other herb in the pasture. Salt, sprinkled over the food, or watering the animal with salt and water, is of great benefit in making them relish their food; it also keeps them in health. The ass is so partial to salt, that it even prefers brackish water to perfectly fresh water; indeed, it is very particular as to the water it drinks, and, as it takes very little at a time, it is only at the clearest brooks, and chiefly those to which it has been accustomed. It is also very cleanly in all its habits, even surpassing most other animals in this respect. It sleeps much less than the horse, and never lies down for that purpose, unless very much tired. It is also much more hardy than the horse, and liable to fewer diseases. Of all animals covered with hair, it is the least subject to vermin, probably owing to the dryness and hardness of its skin.

In speaking of the qualities of the ass, we must contend against the prevailing opinion in England respecting its stupidity; it may be slow, but it is shrewd and correct. Its timidity is mistaken for obstinacy—this is shown, when kindly treated, by its docility; when otherwise, by resistance and caution. It is persevering, and affectionate towards its master, whom it will scent at a distance, and find out in a crowd.

These qualifications ought to recommend it to our suburban and country readers, who might avail themselves, much more than they do, of its useful services. In small chaises for children it is invaluable, as it has none of the tricks of a pony, nor does it shy like a horse. When taken young, and kindly treated, it can be trained to perfect obedience, and if harnessed double they go much better than singly; two together give very little trouble in driving, and are much happier: indeed, they have a most picturesque appearance. Some may make the objection that it is less genteel than a horse or pony, but this is merely a conventional idea that is not at all insurmountable. Also, where there are many females in a family, who cannot have much variety, on account of not being able to accomplish long walks, it would prove a source of great enjoyment and additional health. Neither must we overlook the important advantage of having a supply of that most expensive and highly beneficial restorative for the delicate—ass's milk—which, in some places, costs as much as six shillings a quart, the virtue of which consists in its containing more sugar of milk and less

caseine than that of the cow, and of being digestible by stomachs unequal to the task of assimilating the richer milk of the latter. According to Parmentier and Desyeux, the properties of the milk of our herbivorous domestic quadrupeds may be placed in the following tabular series:—

FOR BUTTER.	CHEESE.	SUGAR.	WHEY.
1. Sheep. 2. Cow. 3. Goat. 4. Ass. 5. Mare.	1. Goat. 2. Sheep. 3. Cow. 4. Ass. 5. Mare.	1. Ass. 2. Mare. 3. Cow. 4. Goat. 5. Sheep.	1. Ass. 2. Mare. 3. Cow. 4. Goat. 5. Sheep.

By this it will be seen that the ass's milk contains most sugar and whey. But the invalid who drinks ass's milk warm from the animal must share it with the little shaggy offspring which frisks at its mother's side; if you remove it the supply is withheld, the sympathetic stimulus having ceased; for the lactation of the ass differs from that of ruminants, which latter, in most instances, by the mere stimulus of drawing away their milk, continue to secrete it. In the ass, on the contrary, this maternal supply fails as soon as the young are taken away. The cow, we know, is milked for months after the calf is otherwise disposed of.

The female ass goes above eleven months with young, and seldom brings forth more than one at a time, which is always in the summer, thus allowing the little one's constitution to harden gradually for the winter. We are assured that she is very fond of her young, and that she will cross fire and water—surmount every obstacle—to protect or rejoin it. Who that has looked upon the poor little foal, beside its tethered mother, with its picturesque head and dark bright eyes, could fail to have their sympathies awakened in its favour, or refrain from patting its shaggy little coat? It arrives at maturity between four and five years. Some commence to breed at two years old, but this is premature and ruinous to the constitution. If shod before fully grown, care should be taken to have the shoes changed as the hoof grows. Few things are more neglected, and yet of greater importance, than a proper system of shoeing. The foot should be protected from the wear and tear of the roads, but it would be better to have none than such shoes as interfere with and limit its action. The ass is too sure-footed to become lame through its own inattention; but if one shoe is allowed to wear down before another, thus causing an inequality, much mischief may result. Great care should be taken that nothing cracks or crushes the crust of the hoof; but if such should take place, a skilful veterinary surgeon should be consulted to see if it has penetrated to the quick.

The ass sheds its teeth like the horse, and its age can be judged of in a similar manner. It is a hardy, long-lived animal; its average age is between thirty and forty years, but many do not live beyond twenty or twenty-five, owing to harsh treatment; so that the poor on their cruelty frustrate their own ends, by shortening the life of the beast they most depend upon for a living. We hear of many cases of longevity in the ass; indeed, it is humorously said to die when it likes. In purchasing an ass there is not much experience required; if it holds up its head naturally, and has bright eyes, it will not be very much out of condition—of course its size and walk will be likewise considered. There are good breeds to be got even in our own country, for many fine ones at some expense have been imported from Spain; and at a donkey show recently held, the Prince of Wales's pure white one gained the prize.

Having mentioned the usefulness of the ass during life, it only remains for us to refer to the various uses of its

body after death. On account of the peculiar consistence of its skin, it is much valued for converting into close smooth vellum, and also for imporous sheaths for the finest swords. In commerce it is known under the name of shagreen, from the Turkish term, *sagri*; but the granular aspect which it thus acquires is not natural to it, but produced by a chemical process. From its hardness and elasticity, it makes excellent leather for shoes; and it is also used for drums and sieves. The bones are extremely hard and solid, and were preferred by the ancients for making flutes of the best sound.

At the risk of appearing tedious, we must again urge the propriety of adopting some means of raising the ass in the scale of domestic servitude. To us the most effectual method seems to be that adopted by Captain Scott, R.N., who started, some years ago, a very excellent movement for the purpose of ameliorating the condition of certain unfortunate donkeys which were employed in the conveyance of coal, and were in a most pitiable condition. Several persons had attempted to remonstrate with the owners of the poor animals, and had only been insulted, without achieving any successful result. Captain Scott, however, struck out another line of conduct; and, instead of abusing or persecuting those who treated their animals badly, he offered prizes to those who could produce the best and healthiest donkey. Several persons joined him in this most laudable undertaking, and they held quarterly meetings, at which the prizes were bestowed. A medal was also given to each successful competitor, and the association pledged themselves to employ no donkey-driver who could not produce a medal. The natural consequences followed. The public soon took up the idea; the medal-holders carried off all the trade; and the cruel and neglectful drivers were either forced to conform to the regulations of the society, or to betake themselves and their beasts elsewhere.

Very much could be said about the mule, which is the produce of the male ass and mare; but as it is not commonly bred in this country, where there is no special demand for its peculiar qualities, it is unnecessary to say much more than that it partakes of the qualities of both parents, with even a greater amount of endurance than either. It is very healthy and long-lived; it is also distinguished by great intelligence, and by a proverbial obstinacy, which it is almost impossible at times to overcome. It has strong affections, and when treated kindly it will obey with the utmost readiness. A few are sometimes offered for sale at cattle-fairs in our country, or a solitary one may be seen in harness going along the streets at a steady pace. The hinney, which is another hybrid, between the male horse and female ass, is rare, and of little value, being destitute of symmetry and strength, and of small stature.

FRENCH POLISH.

BEFORE using French polish, the surface of the wood should be made as smooth as possible. The polish is then poured on the centre of the surface, and spread over it by means of a rubber. The rubber employed for this purpose consists of a long strip of thick woollen list, rolled up into a cylinder of from one to three inches wide, the size of the rubber depending on the extent of the surface to be French polished. The face of the rubber is now to be moistened with the polish: this is done by placing the rubber on the mouth of the bottle, and shaking up the liquid against it, so as to wet its surface. It will be found that once shaking the bottle will be sufficient for this purpose. The rubber is then enclosed in two layers of soft linen, the edges of the linen being tied together at the upper edge of the rubber. The face of the linen is then touched with the finger dipped in linseed oil.

While French polishing, the rubber is to be regularly applied over the surface, in one direction only. When the polish thus applied has become almost dry, more of the liquid must be applied to the surface of the rubber, and the work again gone over.

When three coats of French polish have been thus laid on, a little linseed oil is to be applied to the face of the rubber, and two more coats of polish are then put on.

As soon as a sufficient thickness of polish has been thus applied to the wood, the work is finished by rubbing it over with a quick and delicate touch with a piece of linen moistened with spirit and oil.

French polish consists of shellac dissolved in rectified spirit of wine, usually five ounces and a half of that substance to one pint of spirit. Its composition, however, varies according to the nature and quality of the work for which it is to be employed. Naphtha is also occasionally employed instead of spirit in its preparation. The following produces French polish of a glossy surface, but which does not wear well, owing to its softness and liability to become scratched:—Pale shellac, five ounces; sandarac, one ounce; rectified spirit of wine or naphtha, one pint. Another composition, consisting of five and a half ounces of shellac, three-quarters of an ounce of gum elemi, dissolved in the same quantity of spirit, resembles the previous one.

Sometimes, to prevent having to apply linseed oil to the rubber, the oil is added to the polish as in the following composition:—Shellac, six ounces; linseed oil, a quarter of a pint; naphtha, one pint. Gum mastic is often added to the most expensive forms of French polish, either by itself, or in union with other gums, to render it cheaper, although not so durable. Pale shellac ten ounces; mastic, two ounces; spirit of wine, one pint; is a very good though expensive form. A cheaper form consists of pale shellac, five ounces; gum mastic and gum sandarac, of each three drachms in one pint of spirit. Occasionally gum copal enters into the composition of French polish, as in the following form:—Shellac, a quarter of a pound; gum sandarac, two ounces, dissolved in one pint of spirit of wine; two fluid ounces of copal varnish, and twice that quantity of linseed oil, being then added. Sometimes, when light-coloured wood is to be French polished, and it is therefore necessary that the polish should be pale, some oxalic acid, usually from two to four drachms to each pint is added to the liquid.

It is often necessary to colour French polish, especially when employed for cheap furniture, to improve the appearance of inferior wood. For this purpose the polish may be coloured red by dragon's-blood, alkanet, or red sanders-wood; or yellow, by the use of turmeric or gamboge. These substances are digested in rectified spirit, strained, and sufficient quantity added to the polish when used, to produce the desired effect.

THE HOUSEHOLD MECHANIC.—I.

REPAIRING FURNITURE.

THE cost of furniture merely for fair wear is often found to form an important item in the expenditure of the household; but when it is remembered that in many cases a useful article is consigned to the lumber room on account of some trifling accident which cannot readily be remedied, it may easily be conceived that these expenses are considerably increased. There is, then, in this particular, an excellent opportunity for the display of skill on the part of the household mechanic, as well as for gaining the good thanks of the prudent housewife, who will undoubtedly be glad to receive back into her charge such articles as may have been accidentally damaged, and thus temporarily rendered unserviceable. An accidental overturning of a chair or table will frequently cause

a fracture, which, although it does not altogether destroy the article, renders it unfit for service until it is repaired; and it is our purpose in this paper to describe the best means of effecting such repairs.

The tools required are such as have for the most part been already described in these pages, and, therefore, need not again be mentioned in detail. But there is one thing which, in such work as we are about to describe, must have particular attention—that is, the glue-pot. In all cabinet-work glue plays a very important part, and it must be of the first quality when so much dependence has to be placed upon it. It should be freshly made and used very hot, and, if properly applied, the wood will break sooner than the joint.

Provided with a pot of good glue, then, and the ordinary tools, we will suppose the household mechanic to commence operations upon a veneered table, which has been injured by a fall. Probably a careful examination of the work will show that, while in some parts the veneer has been entirely broken off, in others it has merely been started from its place, and has not altogether left the solid wood by which it has been supported. If, for instance, the table be a circular or oval-shaped one, of the construction shown in Fig. 1, and consists of a flat top, A, secured to a rim of wood, B, the veneer upon the top will probably be loosened round the edges, while that upon the rim will very likely be broken off altogether. In this case the first thing will be to secure that upon the top of the table. If the amateur possesses a pair of hand-screws they will be found exceedingly useful; but if not, a wooden clamp must be made of the shape shown in Fig. 2. This should be cut out of rather stout wood, and fitted over the edge of the table, as shown at C, C, in Fig. 1. Besides this, if the veneer be loose along any considerable distance, a piece of board should be provided, which may be laid over the damaged portion so as to ensure an equal pressure when the clamp is wedged down. A few thin wedges should now be made, and the clamp fitted and slightly tightened to see if it will work properly, and bring the veneer quite down to its place upon the solid wood. It is better to provide two or three of these clamps, as the more pressure can be brought to bear upon the joint, the better will be the result.

These preparations being made, the glue should be heated, and the veneer being raised as far as it can be without breaking, the glue should be quickly and evenly spread over both it and the solid wood to which it is to be attached. The veneer should now be lowered down into its proper position, and as much of the glue as can be squeezed out should be removed by means of a soft sponge and warm water. The board should then be laid over the defect, the clamps be placed in position and wedged firmly into their places; when the work may be allowed to rest until the glue is thoroughly dry and hard, which will be in about twenty-four hours.

It is a good plan to place a sheet or two of soft paper between the top of the table and the board used to distribute the pressure, which will prevent its adhesion to the table. The whole of these operations must be performed quickly and dexterously, before the glue has time to set, and they may be executed best in a warm room, which will prevent a too sudden chilling of the glue. A mistake which is frequently made by amateurs is that of leaving too much glue in the joint. The fact is that the more glue, the worse the joint will be; and in all cases, the more perfectly this substance can be squeezed out, the better will be the result.

After the first-made joint has become quite hard, the clamp may be removed from the table-top, and the repairs required for the rim may be proceeded with. We have supposed that the pieces of veneer have been completely broken away in this case, and if they are much shattered they may probably have to be replaced by new

wood. Suitable veneer may be procured at almost any cabinet-maker's shop at a very small cost, and either this or the old wood must be very carefully fitted into the required position. If the old veneer be used it may be glued into its place, as before described; but if new wood has to be used it must be well soaked in hot water, in order to render it soft and pliable, before the glue is applied. In either case the clamping process must be used; and where the surface to be veneered is curved, more clamps will be required than if it be plain and straight. In the case of a circular table the rim is, of course, curved; and, in order to obtain an equal pressure, it is necessary to use a rather thin board under the clamps, which may easily accommodate itself to the required line. When the work is dry, the clamps may be removed as before directed, and any superfluous glue carefully scraped or washed from the surface of the veneer. If new veneer has been applied, it will require scraping and finishing before it can be polished; and this is best effected by means of a steel scraper, which may be obtained of the tool-maker for a few pence. After scraping, glass-paper should be applied until a perfectly smooth and even surface is obtained. Should there be any little chips broken out which are too small to be fitted with wood, a drop or two of sealing-wax, of a suitable colour to match the wood, may be inserted, and cleaned off even with the surface when it is quite hard.

Although we have selected a table as an example of repairing veneered work, the same method may of course be applied to any other articles of furniture to which similar accidents may have occurred.

It sometimes happens that in furniture made of solid mahogany serious defects occur from the shrinking of the wood, which, if it be blocked at the edges, will very frequently split along its entire length. For instance, the top of a table of what is termed the "Pembroke" pattern will often split quite through the thickness of the wood. This of course renders it unsightly and unfit for use. A very little skill, however, will enable the household mechanic to repair this, when the table will be better than it was at first; because, having been thoroughly seasoned, there will be no fear of future shrinkage. The first thing will be to remove the blocks by which the top is secured to the frame of the table, or, if it be screwed, the screws must be drawn, so as to allow the parts to be wedged tightly together. If any dust or dirt has accumulated in the joint it must be carefully removed, and the parts accurately fitted together before any glue is applied. A couple of strong clamps should then be made of sufficient length to reach across the table-top, and wedges cut so as to ensure the bringing up of the joint. The best method of making a clamp for this purpose is shown in Fig. 3, from which it will be seen that A, A are two pieces of wood, which are secured to cross-pieces, B, B, B, B, at each end, by means of screws. These cross-pieces form the ends of the clamps, which are tightened up to the work by the wedges C, C, C, C. In actual work the clamps should be fitted, and the separated portions of the table-top temporarily brought close, before gluing, so as to make sure of their power to bring the joint close. When this has been accomplished, the edges to be joined should be well glued, using the glue very hot. The clamps may then be wedged tightly up, and the work left until it is quite dry. If this operation be skillfully performed, the fracture will scarcely be observable when the work is cleaned off.

Another accident which is likely to happen is the splitting of the hollow pillar which is often used to support an oval or a round-topped table, and mostly arises from the giving way of the glued joint at one of the angles. Before this can be repaired the pillar must be removed from the plinth upon which it stands, and from the block by which the top is secured to it. Two square

frames should then be made by screwing four strips of wood together, as shown in Fig. 4. One of these should be made to fit the top, and the other the bottom of the pillar. A few small wedges will be required, in order to bring the parts together. When they have been fitted as before described, the joint should be well glued and wedged up close. Before removing the clamping frames, three or four small blocks should be fitted and glued into the angle, as shown at A, which will render the joint strong and perfectly secure.

But although tables are frequently broken, even when most carefully used, chairs are far more liable to accidents, both on account of the great strain to which they are often submitted, and on account of the short grain of

indicated at Fig. 6. These screws should be inserted from the under side of the rail, and the heads sunk in the wood, so that they may be concealed with a little sealing-wax, as recommended for defects in veneer. Sometimes, for the purpose of ensuring additional strength, the dowels are wedged, so as to render it impossible to draw them. Before the pins are inserted, a slight cut is made in the ends of them with a fine saw. Into this cut a small wedge is tapped, when the pin and wedge together are driven into their place. As will be seen by Fig. 7, as soon as the end of this wedge reaches the bottom of the hole, it will spread the pin, and of course render it impossible to remove it, except by boring it out. It must be remembered, however, that this wedging is likely to split the

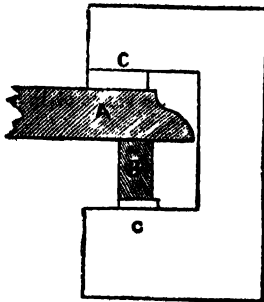


Fig. 1.

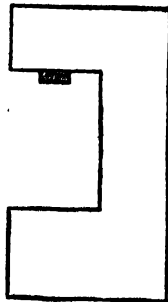


Fig. 2.

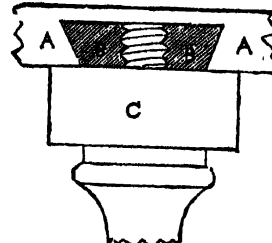


Fig. 3.

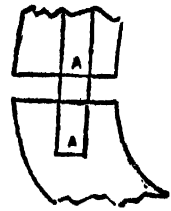


Fig. 4.

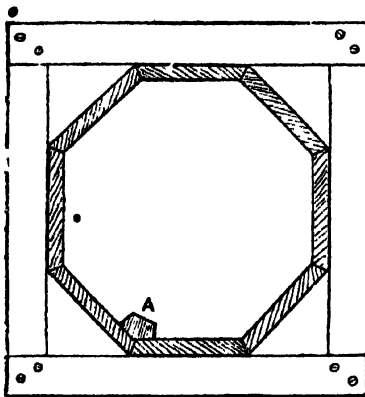


Fig. 5.

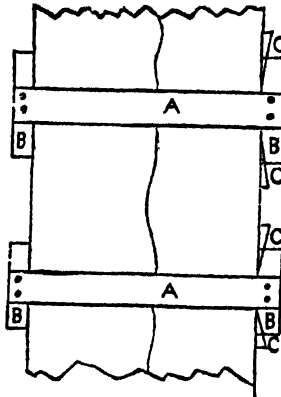


Fig. 6.

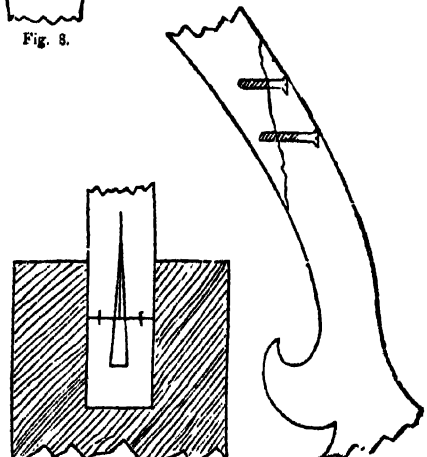


Fig. 7.

the wood in some of the more acute curves into which some portions of them are sometimes cut. In fancy chairs these curves are often so extreme, that if the chair is thrown backwards the back will give way, especially if it be made of a hard or brittle wood, such as walnut. In this case it will not do to trust to glue alone in order to render the chair serviceable, but screws or dowelling must be resorted to if the repairing is to be effectual.

Fig. 5 shows how this dowelling is effected. Both parts are first bored with a sharp pin-bit, or centre-bit, if the size of the wood will allow of it; of course taking the greatest care that the holes in both parts are perfectly coincident; a pin of metal or wood, A A, must then be prepared, and accurately fitted to the holes made. The fractured part should then be well glued, as well as the pin or dowel, and driven tightly down so as to squeeze out as much of the glue as possible. If this be well done, the chair will be as strong as it was before the accident. This method is best suited to the stouter parts of the chair, such as the legs, or principal parts of the back; but for the lighter work a little good glue and two or three fine brass screws may be used, in the manner

wood if carried too far; and although it is an exceedingly strong method of making a joint, the simple pin-joint, if well fitted and glued, will in most cases be found not only much easier to carry out, but quite strong enough for any ordinary purpose.

In some cases the legs of chairs, or the pillars of tables, are secured to the top or frames with wooden screws, which are turned out of the solid wood. An accidental fall will often destroy the worm, either upon the screw itself, or the nut into which it is fitted. If the screw itself is broken, the only plan will be to replace it, which may be done by dowelling a new screw into the old leg or pillar, as before described. In this case the greatest care must be taken to fit the dowel very tightly, as the strain upon it will be very great. If the worm be worn off the nut, the best plan will be to replace it by letting into the frame a piece of wood properly tapped to fit the screw. The method of effecting this is shown in Fig. 8, in which A A is the frame of the sofa or chair; B B, the block which is to be let in; and C, the leg or pillar into which it is screwed. The wood of the original frame must be cut away as shown in the figure, so as to dovetail the inserted

block firmly into it; it should be well glued, and, if convenient, screwed as well, to ensure its perfect rigidity. As will be observed, this block must be inserted from one side, as from its shape it cannot be driven into its place from the lower surface. This process of repairing is of the utmost use in the case of couches and sofas, the screwed legs of which very frequently become loosened long before the pieces of furniture themselves are half worn out.

There are many other little matters in connection with household furniture, which require some attention from time to time; but the consideration of these we must reserve for another paper. We have treated of French polishing in a preceding page of this number.

THE TOILETTE.—XXIV.

PLANTS AND THEIR PRODUCTS EMPLOYED IN PERFUMERY (continued from p. 31).

THE flowers of the cassie, the product of the *Acacia Farnesiana*, have a scent so sweet as to be almost sickly, and similar in its nature to that of the violet, but much stronger, for which reason it is usually combined with the perfume of violets to strengthen it, and make it go farther as a scent.

The scent is obtained from the cassie by fat, when the cassie pomade is produced, or in oil, which forms the *huile de casse*.

When twelve ounces of the best cassie pomade are digested in one pint of rectified spirits of wine for a month, a dark green liquid is obtained, possessing a rich perfume of the flowers. This is known as the *extrait de casse*.

That well-known plant the rosemary (*Rosmarinus officinalis*) yields, when distilled with water, a powerful scent somewhat resembling camphor in its character. It is chiefly used in perfumery for scenting soaps, hair oil, and other common purposes.

The rhizome of an Indian grass known as *vetiver*, or *kus-kus*, a kind of dog-grass, a native of India, possessing an agreeable aromatic odour, was at one time much employed in perfumery. The old-fashioned scent called *maréchale* is indebted for much of its peculiar perfume to this substance.

The essential oil, or otto of vetiver, is prepared by distilling this plant with water. When two drachms of the otto are dissolved in one pint of rectified spirits of wine, the extract of vetiver is produced. The extract may also be procured by macerating one pound of the plant in a quart of spirit for fourteen days, straining off the clear liquid, and filtering.

Peppermint (*Mentha piperita*) and spear mint (*Mentha viridis*) are used in perfumery, the preference being given to the English oils, as the foreign are of inferior quality. When distilled with water, they yield essential oils which smell powerfully of the plants from which they were obtained, and which are comprised in the composition of various perfumes.

A pleasant-smelling perfume, known as the oil of cedar, may be extracted from the *Juniperus Virginiana*, the wood of which cedar pencils are made, by distilling shavings of the wood in water. It is not usually employed in its pure form, but in union with roses. When one part of oil is added to five of the *esprit rose triple*, and twenty of rectified spirit, an agreeable perfume for the handkerchief is obtained, usually called the extract of the cedars of Lebanon.

The root of the Florentine iris (*Iris Florentina*), commonly known as orris or iris root, is extensively employed for various purposes in perfumery, owing to its cheapness, and its pleasant odour, which resembles violets. When ground into powder, it is used in the composition of sachets and tooth-powders.

Extract of iris is obtained by digesting fifteen ounces of sliced iris-root in one pint of rectified spirits of wine for four weeks. The extract of iris is much employed in cheap perfumes.

The blossoms of the double Parma violet (*Viola odorata*) are used as a delicate perfume, usually in combination with iris-root. The perfume is obtained from the flowers by enfleurage or maceration. Extract of violets is prepared by extracting the scent from one ounce of violet pomade by the action of one pint of rectified spirit, and strengthening it with two drachms of extract of cassie, and three drachms of tincture of iris-root.

Vanilla (*Vanilla plantifolia*), so much used for flavouring chocolate, is also used as a perfume. It is much employed in union with delicate scents, for the purpose of giving them permanence, and preventing them from becoming sickly after they have been placed for some time on the handkerchief, or other article we wish to perfume. The extract of vanilla is generally used for this purpose. It is prepared by macerating an ounce of this plant in one pint of rectified spirits of wine.

Sandal-wood (*Santalum album*) distilled with water yields an essential oil or otto of oily appearance, and of a straw-like yellow, which, when dissolved in spirits of wine, in the proportion of one drachm to the ounce, yields an extract which forms a good and cheap perfume.

The scent for the handkerchief known as the *extrait de bois de santal*, is a solution of one and a half parts of the essential oil dissolved in seventy parts of rectified spirits of wine, and perfumed with ten parts of the *esprit de rose triple*.

The flowers of the jasmine (*Jasminum odoratissimum*), are much cultivated in the southern parts of France for the purposes of the perfumer. The perfume is obtained from them by enfleurage or maceration, about three pounds of the flowers of the jasmine being required for each pound of fat.

Sometimes the flowers are laid on cloths moistened with oil; the perfumed oil thus obtained is known as *huile antique au jasmin*.

The elder (*Sambucus nigra*) is usually employed in the production of elder-flower water. This is prepared by placing in a distilling apparatus nine pounds of elder-flowers, with four gallons of water, and distilling three gallons. To the elder-flower water thus obtained three ounces of rectified spirits of wine are to be added to prevent decomposition.

The fruit of the cedrat (*Citrus medica*), a species of citron, yields a perfume of a lemon-like character, which is generally liked. An essential oil is obtained from the rind of cedrat, either by distillation or expression, the oil obtained by the latter process being the most valuable, owing to its possessing more of the odour of the fruit. When one ounce of oil is dissolved in half a pint of spirit, extract of cedrat is produced. Sometimes two or three drachms of the oil of bergamot are added to the extract to increase its perfume.

TO PRESERVE MILK AND CREAM FOR LONG PERIODS.—Add one ounce of sugar to one pint of milk, and boil it down to one-half. Run it into small bottles, and place them in a pan of cold water placed on a good fire. Allow the water to boil for an hour, and then, while still hot, close the mouths of the bottles with very good and tight-fitting corks, and let them become cold. When cold, dip the cork and neck of the vessel in a ladle containing melting sealing-wax or common pitch, so as to render them perfectly airtight. Cream is preserved by evaporating it down to a quarter of its previous bulk, without adding sugar, and then preserving it in bottles as directed for milk. The bottles containing it should, however, only be boiled for three-quarters of an hour.

MODE AND EXPENSE OF ENTERING THE PROFESSIONS.—I.

THE BAR.

A CALL to the bar is at once the easiest as well as the most difficult thing to be accomplished in the world, for though a man can qualify for a call to the bar by merely eating some dinners and passing examinations, yet the fees attendant thereon are so heavy and numerous that to persons of limited income the bar is an impossible profession. Besides which, when a man is fairly called, it is ten to one that business will come to him before he has been in the profession four years, during which time he must have means not only sufficient to support himself, but also to enable him to travel his circuit, which cannot be done on much less than £100 a year.

In order to illustrate our proposition, we intend to show and explain the various methods by which persons can qualify for a call to the bar, and also the expenses and fees incident thereto.

The first thing to be done is for the student to enter his name on the books of one of the Inns of Court, of which there are four, namely, the Inner Temple, the Middle Temple, Lincoln's Inn, and Gray's Inn.

To enable a man to be admitted as a student at any of the four Inns, without passing a preliminary examination, he must have passed a public examination at any of the universities within the British dominions. It is not necessary that he should have taken his degree; the fact of his having passed his "little-go" is sufficient to qualify him for entrance, and enable him to dispense with the infliction of a preliminary examination. Should, however, the intending student not be a University man, he will have to pass a short and easy examination in the English and Latin languages, and also have some questions asked him in English history. This examination is, however, exceedingly easy, so much so that it almost resolves itself into a mere form. Besides this, however, he must sign a paper, which runs to this effect:—

"I ———, of ———, aged 21, the eldest son of ———, of ———, in the county of ———, do hereby declare that I am desirous of being admitted a student of the Honourable Society of ———, for the purpose of being called to the bar, or of practising under the bar, and that I will not, either directly or indirectly, apply for or take out any certificate to practise, directly or indirectly, as a special pleader, or conveyancer, or draftsman in Equity, without the special permission of the Master of the Bench of the said Society. And I do hereby further declare, that I am not an attorney-at-law, solicitor, a writer to the Signet, a writer of the Scotch Court, a proctor, a notary public, a clerk in Chancery, a Parliamentary agent, an agent in any court, original or appellate, a clerk to any justice of the peace, nor do I act, directly or indirectly, in any such capacity, or in the capacity of clerk of or to any of the persons above described, or as clerk of or to any barrister, conveyancer, special pleader, or Equity draftsman, or of or to any officer in any Court of Law or Equity."

This document must be signed by the person desiring to be admitted as a student, and also by two barristers, who certify to their belief in the respectability of the applicant; they may belong to any Inn of Court, and it is not by any means necessary that they should belong to the same Inn as that to which the person for whom they sign is about to belong. Further, it must be approved and signed by the Treasurer, or in his absence, by two benchers of the Inn. After this, certain fees must be paid, which are run up, by a process known only to those conversant with the law and lawyers, to a sum amounting in all to about £37. This includes the readers' fee of five guineas, in consideration of which a ticket is presented to the now admitted student, which admits him free to all

the public lectures that are given by the readers. Non-university men must deposit a sum of £100, the surplus of which, if any, after payment of fees, will be handed over to him when he is called.

Having now entered our student at one of the Inns, let us see how he can best spend his time during the three years which must elapse before he can be called to the bar. In the first place, he must keep his twelve terms, which must be done by eating dinners in the hall of the Inn to which he belongs. If he is a member of any of the Universities of Oxford, Cambridge, Dublin, London, Durham, the Queen's University in Ireland, St. Andrew's, Aberdeen, Glasgow, or Edinburgh, he need only eat three in a term; but if he is a non-university man, or, being one, has taken his name off the books, and by so doing has ceased to be a member of one, he must eat six. The regulations as to dinner differ in the various Inns. In the Inner Temple they charge a guinea a term, for six dinners, and students can for that money eat either three or six as they please; but they make no reduction in the fee if the smaller number of dinners are eaten. At this Inn the dinner hour is half-past five. At the other Inns the case is somewhat different—two shillings a dinner is the amount demanded, and a student is charged no more than the amount due for the dinners actually eaten. The Middle Temple men dine at six, and Lincoln's Inn and Gray's Inn at the same hour as the Inner Temple. Every student is supplied with a gown—for the use of which, of course, he has to pay—in which he has to dine; and before entering the hall he must give his name to a clerk, who will enter it in a book. The dinner is fair, but nothing extraordinary; fish or soup, joints or fowls, pudding, cheese, and as much beer as you like. Every four students are portioned off into a mess, for which a bottle of wine is provided.

But the mere fact of his having kept his terms will not of itself entitle a student to his call to the bar. He must have performed besides one of three conditions—that is to say, he must either have attended during one whole year the lectures and private classes of two of the readers, or have been a pupil during one whole year, or periods equal to a year, in the chambers of some barrister, certified special pleader, conveyancer, or draftsman in Equity, or two or more of such persons; or have satisfactorily passed a public examination.

The first of these ways is now confined to students admitted before 1864, and the second to students admitted before 1872; so that for all fresh students the only method now available is that of public examination. It is still advisable, however, in order to gain some practical knowledge of the profession while studying the theory, to read with men already in good practice, avoiding those who have little but routine work and many pupils, and rather choosing those with plenty of work and few pupils, using the advice of any professional friends in this matter as far as possible.

The public examinations, which henceforth form the avenue of admission to the profession, are under the control of the Council of Legal Education. The educational year consists of three terms, and every student on admission pays a fee of five guineas, which franks him to all the lectures of all the professors. Attendance is not compulsory, but of course a student who means work will make the most of all advantages. He will also probably attend the private classes of at least some of the professors, the usual fee for which is five guineas per annum, and which very much assist in reading up for the examinations. The subjects are as follows: (1) Jurisprudence, including International Law, public and private; (2) Roman Civil Law; (3) Constitutional Law and Legal History; (4) Common Law; (5) Equity; (6) Law of Real and Personal Property; (7) Criminal Law. To receive a certificate of fitness entitling to call, the student must

pass in at least Roman Civil Law, Law of Real and Personal Property, Common Law, and Equity. He may pass in Roman Civil Law after keeping four terms, but cannot be examined further for his call till he has kept nine terms. A degree in law granted by any British University may be accepted for any subjects without further examination, except Common Law and Equity.

Four examinations are held yearly, one early enough before each Law Term for the students to receive the necessary certificates for that term. The chief examinations are those before Hilary and Trinity Terms, as studentships and honours are then awarded. To pass in honours is very advantageous, as the Inn of the student so far fortunate may dispense with not more than two of the remaining terms (if any) before he can be called; and at every call those students who have obtained honours take rank in seniority over all other students called the same day.

There are six studentships for two years and six for one year of one hundred guineas each, open to all students of a certain standing in regard to the number of terms kept; two studentships of each class being awarded at every examination before the two terms mentioned. In each group of subjects are also awarded four prizes of £50, £25, £15, and £10 respectively at the examination in December on the subjects of the professors' lectures; also two prizes of £70 and £30 for the highest aggregate marks in any two subjects. These prizes are not open to winners of studentships, and candidates for them must have attended at least two-thirds of the lectures for the year in the subjects competed in, no candidate being allowed to compete in more than two subjects, or to take more than one prize. Besides these general prizes, each Inn of Court has valuable scholarships of its own; so that a really considerable amount of public money is at the service of the most able and deserving students.

We will suppose now that our student has qualified for his call to the bar, and has kept his terms. His name and description must, before he can be called, be posted up or "screened" in the Hall, Benchers' Room, and Secretary's or Treasurer's Office of his Inn. He will also have to give notice or petition at the Treasurer's office, according to regulations slightly differing at each Inn, of his intention. At Lincoln's Inn the candidate has to sign a declaration that he is not in trade, and must have been twice "introduced" by the steward to bar table after dinner, once in the year of admission, and the other within a twelvemonth of his call. Here the fees on call are £94, with any arrears of commons and dues. At the Middle Temple the fees on call are £99 10s.; at the Inner Temple, £94 9s. 6d.; at Gray's Inn, only £77 2s. 4d. Besides these fees in cash, at most Inns the student has to give bonds jointly with one or two householders for sums varying from £50 to £100.

Most of the Inns have regulations dispensing with the usual deposit of £100, and giving other privileges, to members of recognised Universities who have kept a certain number of terms at such University, and who have taken a degree before being called to the bar. And the Inns or Council of Legal Education have certain powers of dispensing with the ordinary conditions as here set forth, in any very special cases, as they may see fit. But the design of all the recent regulations, and the abolition of the former alternative methods of qualifying, has been to substitute real education and hard work for purely honorary qualifications.

All this being attended to, the student must be introduced to a benchers of his Inn, who will nominate him a fit and proper person to be called to the bar. If a man intends to practise under the bar, he must take out a certificate to enable him to do so. This involves the payment of less fees, and is done by men who intend to practise as special pleaders. The principal distinction

between them and barristers is, that whereas the latter cannot take less than a guinea fee, special pleaders can have any smaller sum marked on their briefs.

The mode of calling is pretty much the same, in all the Inns, only differing in a few trifling particulars. The call-night is on the 16th of each term, unless it should happen to be Sunday, when it is the following Monday. On that night, after dinner, the students about to be called are summoned to the common room, where they are ranged up against the wall in a row, and are subjected to the scrutiny of the benchers for a few minutes, after which a solemn person advances, and inquires of each student what wine he would prefer, and if the student is wise he will answer, "Madeira." Every student is then provided with a glass filled with the wine of his choice, and awaits the result. A grave and elderly benchers then rises and proposes the health of the gentlemen who are about to be called to the bar, and informs them, amongst other things, that he is certain from what he has seen of them that they will individually be an honour and an ornament to the noble profession to which they are about to belong. He then sits down; the gentlemen about to be called to the bar drink off the contents of their glasses, and the senior student returns thanks in a neat and appropriate speech. Then a few forms are gone through, and the gentlemen—students no longer—are at last fairly called to the bar.

HINTS ABOUT FRUIT.

Apples (Pyrus malus), of which there are two hundred and fifty varieties, contain a large quantity of malic acid, especially when unripe. It is to the presence of this acid that their sourness is due. For this reason the practice of eating unripe apples has been thought to be injurious to the teeth, owing to this acid acting on the enamel. The tart taste which cider possesses is due to the quantity of this acid it contains. Cider, although wholesome when taken in small quantities, yet is apt to produce colic if indulged in to excess, especially if the system is overheated by exertion. Cider is often contaminated with some of the salts of lead, produced by the acid of the apple juice acting on the lead with which the cider-press is sometimes lined, a practice which cannot be too strongly condemned. When apples are cut with a bright steel knife, the surface of the metal is sometimes turned black; this has been attributed to that fruit containing gallic or tannic acids. The fact that apple sauce, when taken with pork, assists the digestion of the meat, is owing to the malic acid in the sauce.

The Apricot (Prunus Armeniaca), of which fifteen kinds are known, is a nourishing fruit, possessing a sweet and pleasant flavour. It yields more nourishment than either the nectarine, peach, plum, or cherry.

Bilberries (Vaccinium myrtillus) are cooling fruit, having a slight degree of acidity. They are sometimes employed for preserves, or pastry, and may be made into a wine not unlike port.

Damsons, although wholesome when cooked, yet if eaten in the raw state are apt to produce colic.

Grapes (Vitis vinifera), when ripe, are cooling and nutritious; while unripe they are found to contain a large quantity of tartaric acid.

The Fig (Ficus carica), when fresh, is a wholesome and nutritious fruit, but in some may produce flatulence and acidity, especially if eaten in excess.

The dried fig, raisins, prunes, dates, and other dried fruits, contain a large quantity of sugar and mucilage. Although they are easy of digestion to many persons, yet with some they are apt to disagree. Dates contain much nourishment, and are the food on which the Arab chiefly subsists. Wine may be made from dates, by crushing them in soft water, and allowing them to ferment.

HOUSEHOLD DECORATIVE ART.—XLVIII.

PAPIER-MÂCHÉ WORK : PEARL INLAYING.

FEW of the decorative arts furnish more beautiful articles for domestic use than does that of papier-mâché or Japan work. The glossy surface in which it exhibits its beauty of colour, and the profusion of its gold enrichments in combination with the iridescent lustre of the delicate pearl with which it is inlaid, always render articles in papier-mâché the most striking to the eye upon entering a room. The art was originally derived from the East, and objects brought from the country from which it derives its name, and from the remotest regions of the Asiatic continent, still remain models for our imitation. The material of which these are composed is wood covered with a beautiful dark varnish, with the exact composition of which Europeans are still unacquainted; but for this a substitute, almost as effective, has been found in combinations of paper coated with varnishes,

of paper are pasted over it; it is then dried in the stove. After a second coating of paper, and subsequent stoving, the paper object (say a vase) is sawn in two and the core removed; the two halves are then smoothed and glued together, and

more coatings of paper are pasted over them, which operation totally conceals any appearance of their having been joined. After the final stoving, the vase is soaked in linseed oil to thoroughly harden the paper; it is then dressed and smoothed in a lathe with files and sand-paper in precisely the same manner as if made of wood, and a bottom cut from a piece of flat panel is then glued on, and carefully smoothed to the requisite circular shape. That panel can be sawn, glued, and joined together into articles in almost precisely the same manner as wooden boards.

In papier-mâché manufactures these operations, with the exception of the turning and joiner's work, are performed by women, and there is no reason why the whole of these processes should not be carried out, with the assistance of an oven,

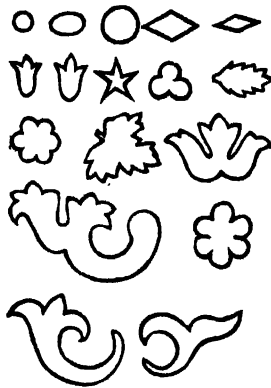


Fig. 1.

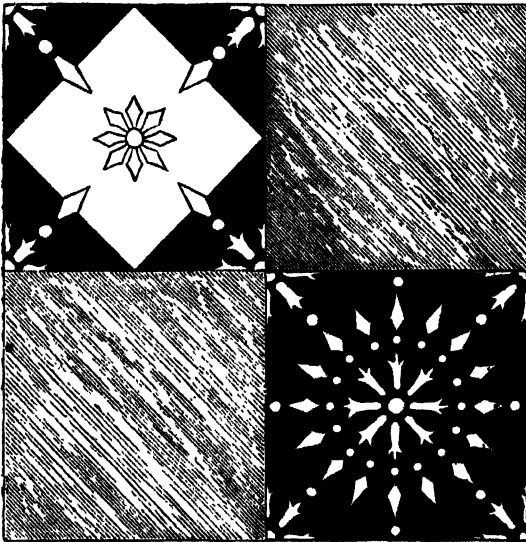


Fig. 2.

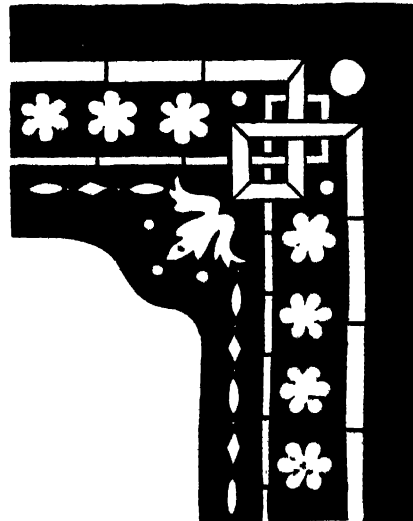


Fig. 3.

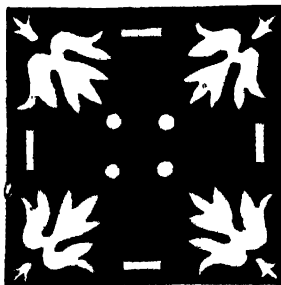


Fig. 4.

which give a surface scarcely less glossy and beautiful than that attained by means of their Eastern prototype.

The best descriptions of papier-mâché are composed of sheets of thick porous grey paper, pasted together until the requisite thickness has been attained. A flat article is made by pasting together three sheets of this paper; these are thoroughly saturated with a strong paste which contains glue, laid over a flat slab, and pressed and smoothed together by means of a level piece of wood. These sheets are then placed in a stove and dried, the process being repeated time after time till the panel of paper has acquired the requisite thickness. For the formation of curved objects, a wooden mould or core is used; this is well greased, and three or four thicknesses

by any amateur in his or her own house, as we have ourselves done with considerable success.

Half a century ago, this was the only method; but at the present day, from its greater cheapness, papier-mâché is usually formed of a thick mass of the same material as paper, mixed with paste and pressed in moulds to the form required, and in this objects and panels are to be purchased

far more cheaply than they can be made of sheets of paper. From a papier-mâché manufactory any article may be obtained in this latter material, ready prepared for inlaying with pearl, at an exceedingly low price; and of this the amateur artist in papier-mâché will generally do well to avail himself, to avoid the trouble of attempting the earlier and merely mechanical processes; all that

is really interesting in the art will be found to lie in the later operations of inlaying and painting.

The pearls used for inlaying papier-mâché work are of four kinds: ordinary mother-of-pearl, aurora pearl—which is excessively iridescent and beautiful, but only to be obtained in small pieces rarely of one inch square—snail, or Scotch pearl—which has more gradual changes of colour, but can be obtained in much larger pieces than the aurora pearl—and the green pearl, which has exceedingly beautiful changes from blue to green, but is very liable to crack. These small sheets or flakes of pearl (the form in which the material is used for this work), of about the thickness of ordinary drawing-paper, can be bought, of the three latter kinds at about two-and-sixpence an ounce, and of the former at somewhat less. From the pearl-workers, also, can be bought a variety of ornaments ready stamped out, consisting of such simple devices as flowers, bells, stars, dots, &c.; a collection of these is shown in Fig. 1. The flakes may be cut into other simple forms with a pair of small strong scissors, but for so doing they should previously be soaked in water to render them less brittle; rectilinear figures may be better cut with a saw made by roughening the edge of a knife by drawing it across a file; while intricate patterns must be cut out with a fine bow-saw in the manner described in our articles on "Fret-work" (vol. ii., p. 84), a number of pieces of pearl being glued together and sawn through at the same time.

The "blank," as the article is called before it is decorated, will, when purchased, have received a preparation for the "pearling" by being coated with "black varnish," which, after it has passed about twelve hours in a stove, will have been scraped smoothly off, so that when it reaches the hands of the amateur it will be ready for the operation of inlaying.

A pattern having been prepared by drawing all the principal lines of the design to the actual size upon paper, and these lines having been pricked through with a needle into a succession of small holes, it is usual to blacken the blank by rubbing it over with a damp rag dipped in lampblack; the pattern is then laid upon it, and whitening is rubbed through the holes with a piece of wash-leather; when the paper is removed the design will be seen indicated by a number of small white dots. With a camel-hair pencil dipped in flake, or Chinese white, the outline of the design should then be drawn through the dots, as otherwise the after operation of sizing might obliterate them. This is only necessary where the design is somewhat intricate; for simple designs a black-lead line will show sufficiently.

Those parts on which the pearl has to be laid must now be coated with a size known as japanners' gold-size, and upon this the flakes of pearl must be laid in their places; small pieces are best taken up and placed upon the blank with a point of boxwood, rendered adhesive by just touching it with size. The work must then be put in a stove to set the pearl; for this purpose an ordinary oven, very moderately heated, will suffice. When the pearl is set (which will be in about twelve hours or somewhat more, according to the heat of the stove), if it be found that some pieces are springy—that is, do not lie flat, little paste must be worked under them with the finger, and weights placed on to keep them down till they are firmly fixed. When the whole of the pearl has been placed in position upon the article, it will, however, be better to send it at once to the professional japanner, who will attend to all the remaining operations (with the exception of the ultimate touching-up), which are merely mechanical.

Let us now suppose that the amateur would wish to make his first attempt on an article which will be at the same time simple and effective; nothing will be better for him to begin upon than a chess-board. For the white

squares, mother-of-pearl or snail pearl will have to be used, as in these there will be least difficulty in finding pieces of the required size; and of the two, snail pearl will be the most pleasing in effect. These squares may be purchased ready for use, or the amateur may cut them in the following manner:—Let him first make a pattern of the required size and shape in cardboard, and lay it over the flake of pearl, marking round the sides with a black lead pencil. Let him then lay the pearl on a piece of board fixed to the table, and, holding the flake firmly, saw through the markings with the edge of the roughened knife.

For the black squares, pretty combinations may be formed of the ready-stamped pearl shapes given in Fig. 1. Examples of squares thus formed are shown in Figs. 2, 3, and 4; and a board may be completed with black squares, all of the same design, or of two alternating designs, or of all the squares differing in pattern, though the two latter, in our opinion, are less effective. A border may also be formed to surround the board, wholly composed of such stamped devices, though a combination of these and rectilinear strips of pearl, as shown in Fig. 5, is much to be preferred. All these pieces of pearl being fixed on, the chess-board will be ready for the operation of "stoving."

The gold-size being dried in the stove, and the pearl thus set, the next operation will be a merely mechanical and not particularly agreeable one, and therefore had better be left to the japan manufacturer. It consists in coating the whole work with a thick black varnish. The article again goes into the stove, is dried, and the surface is then rubbed with a piece of pumice-stone till the pearl is cleared of its covering of the varnish. These operations of "blackening, stoving, and pumicing" are repeated till the pieces of pearl and the intermediate spaces have become one perfectly level plane, chiefly through those parts on which no pearl is laid being filled up with varnish, but also to a slight extent through the pearl being worn down by the operation of pumicing. As will be seen from the above remarks, what is known as "inlaying with pearl" in papier-mâché work is not actually such, for the pearl is not let into the background—as would be done in real inlaying—but the background itself is raised to the level of the pearl.

DOMESTIC MEDICINE.—XLVIII.

PLEURISY—TRUE AND FALSE.

THE word is derived from the Greek word *πλευρά*, *the side*; the characteristic feature of the disease being a pain or stitch in the side. But all pains in the side are not pleurisies; in fact the majority of pains in the side are not pleurisies. It is, therefore, important to enable people affected with a pain in the side to know whether it is really of the nature of pleurisy or not. There are few complaints more common, especially in women, than pains in the side, sometimes very sore and even sharp. But these have generally nothing to do with the pleura, and it is of great moment to carefully distinguish pleurisy from a mere pain in the side. The distinction will appear if we describe, first, genuine pleurisy in its acute and chronic forms, and then those stitches or pains in the side which are known as pleurodynia, or false pleurisy.

Acute Pleurisy is a genuine inflammation of the smooth membrane called the pleura. This important and extensive membrane covers the whole surface of the lung, and lines the whole of the inside of the ribs. Being perfectly smooth and moist, and covering the whole of the inside of the chest, it enables the lungs to move freely and easily up and down in the performance of respiration. Now let us see what happens when this membrane becomes inflamed. The inflammation, like all other

inflammations, is most generally ushered in either by chilliness or a distinct *rigorous* shivering, making the teeth chatter. The shivering is soon followed by feverishness. The skin gets hot, and the tongue furred. The pulse becomes quicker and stronger than usual. Coincidentally with all these symptoms is some restraint of the breathing. The breathing is kept in, or held, because, when at all full, it is accompanied with a sharp pain or *stitch* in the side. The pain is an acute lancinating pain, and it is not uncommonly below the nipple, and covers sometimes a very small surface, and occasionally extends round towards the back. The pain is aggravated by a deep breath, by coughing, by lying on the affected side, and by deep pressure. Unfortunately, pleurisy is generally attended with a cough, which is dry and short and harsh, and every cough is attended with more or less pain.

The course of things now depends a good deal upon treatment, and upon whether or not the lung as well as the pleura is affected. The tendency of inflammation in this smooth membrane—the pleura—is to throw out a kind of sticky lymph, which gives rise to a sound over the part affected in the movements of breathing, called a *friction* or rubbing sound. Moreover, a good deal of watery fluid also is thrown out, as much as pints sometimes. This accumulation occurs sometimes gradually, at other times quickly. If it occurs very quickly, and in large quantity it may greatly embarrass breathing and displace the organs in the chest. Some people, by a pleurisy in the left side, have the heart pushed on to the right by fluid. The fluid, in any quantity, suppresses or diminishes the movement of the lung and the breathing sounds connected therewith; and instead of the chest giving, when tapped, a clear resonant sound, it emits a dull one. The tendency of the lymph and fluid in the chest in pleurisy is removed gradually by *absorption*. On the whole, the acuter pleurisy is the better.

Causes.—Cold and wet are among the causes of pleurisy, and perhaps the principal ones. It is more apt to occur to people of a certain constitution—perhaps to rheumatic people; to those who have some other diseases, such as kidney disease, or in persons affected with scarlet fever or measles. It is not uncommon in childhood, and is rare in the extremes of life. Injuries of the chest, especially if accompanied by fracture of the ribs, often cause pleurisy.

Treatment.—This, of course, is a matter upon which to take advice. We can only give a few hints for those who may be out of the way of this advantage. For the relief of the pain, a very large warm linseed poultice should be applied, and repeated every three or four hours. Grown-up persons may take five or eight grains of what is known as Dover's powder, every night at bedtime, in gruel for two or three times. The diet should be light, consisting of milk, barley-water, or beef-tea; and the fever, if very high, may be moderated by the following prescription:—Citrate of potash, sixty or eighty grains; spirits of nitre, two drachms; tincture of henbane, one drachm; water, eight ounces. Mix. An eighth part to be taken every three or four hours. These hints, we repeat, are only fit to be acted on by those who are out of the way of medical advice.

Chronic Pleurisy.—This is perhaps the more common form of the disease, and it is not less serious than the acute forms, but rather more so. The distinction is, that the chronic form extends over a longer time, and comes on more insidiously. There is either no pain, or the pain is much less acute than in sharper attacks of the disease. It comes on, for the most part, in those of delicate constitution, with a slightly consumptive tendency, or after exhausting attacks of measles or scarlet fever. It is to be recognised only by the doctor; but it may be suspected if there is more or less pain in the side, with short, hacking, dry cough, shortness of breath, and

no other very obvious chest disease. The fluid which accumulates in such cases is not watery as in acute pleurisy, but of the nature of matter or pus, more or less thick. The patient is very weak, and may have exhausting sweats.

Treatment.—The case is one, even more than the acute forms of the disease, for judicious management. All that can be done in the way of domestic medicine, after sending for the doctor, is to keep the patient quiet and comfortable, and to feed him simply and sufficiently. If any medicine is ventured on it should be cod-liver oil. The case often requires surgical interference; in other words, if the fluid in the chest and compression of the lungs cannot be got rid of by medical measures, it must be evacuated by a puncture.

Various Pains in the Side.—There are few complaints more common than pain in the side, and only a very few of them are cases of real pleurisy. We now propose to say a few words about pains in the side.

The side, by which is generally meant the lower part of the chest, one side or the other, is made up of the pleura, which is the seat of pleurisy, of muscles which run between the ribs, and of nerves, which also lie between the ribs, and of the skin, which covers all. Here, then, we have five tissues, any of which may be the seat of pain—the pleura, the muscles, the bones of the ribs, the nerves, or the skin. We have considered the pain which is connected with inflammation of the pleura. The bone of the ribs is not often affected with pain. We shall, therefore, only have to speak of three kinds of pain in the side, and try roughly to distinguish them for the information of sufferers.

1. *Nerve Pains in the Side.*—These are very common in females. It is almost as characteristic of the complaints of females to have pains in the side as for them to be hysterical, and the most of these side pains are seated in the nerves; in other words, they are neuralgic pains. They may be very sharp, or they may take the form of soreness or weakness of the side. They generally are accompanied with more or less of general weakness, often with paleness. At the same time, it should be said that such pains often coincide with particular forms of constitutional derangement. In such cases there is generally a great paleness of the skin—a want of red blood. The breathing is often short, so that when the patient walks quickly or runs upstairs she is out of breath. Though the pain in the side may be sharp in such cases, it is not attended with shivering or heat of skin, or the other signs of inflammation. The patient may even feel cold, especially in the feet and hands. Moreover, there is little or no cough in the cases which we are trying to describe, which still further distinguishes them from the pains connected with colds, bronchitis, and inflammations in the chest.

Treatment.—Such pains as we have described are rather to be cured by general treatment than by local application. Like most neuralgic pains, they are benefited by strengthening medicines, such as quinine and iron. If there is anything excessive or exhausting in the work of the patient, it must be abandoned or altered. Such pains are often felt by milliners and dressmakers, who have very long hours of work, or in those who work at a heavy sewing-machine, and, probably, also in a close atmosphere. Food should be simple and nourishing, such as milk, meat, and the like. There should be a little exercise or walking in the open air, but it should not be such or so long as to tire the patient. If there is anything decidedly irregular in the functions of the body, and the pain is not quickly relieved by acting on the suggestions we have made, medical advice should be taken.

2. *Muscular Pains in the Side.*—There are sometimes pains in the side which seem to be seated in the muscles

which occupy the spaces between the ribs. They are increased by the movements of respiration, by moving or stretching the arm or side. The pain may be very sharp or severe, and like that of pleurisy. It is to be distinguished from it mainly by the absence of shivering, and of subsequent feverishness. The patient may be of a rheumatic constitution, and the urine may be loaded with thick reddish or pink deposits. Such pains are generally caused by cold, or cold and wet together, especially in rheumatic subjects who are not warmly clad.

Treatment.—Warmth of the surface should be secured by keeping the house or staying in bed for a day or two. Various local applications are of use, such as a mustard plaster or a linseed poultice. If these fail, the following liniment may be used:—The liniment of opium of the British Pharmacopœia, an ounce and a half, to be rubbed in night and morning. But if the patient is conscious of any general disorder of the system, if the complaint is not strictly local, and withal slight, he should take advice.

2. *Pains in the Side caused by Shingles.*—Shingles is an eruption of small vesicles, not unlike that of chicken-pox or of vaccination, on one side of the body, extending more or less from the spine of the back to the breast-bone, on one side. It is often both preceded and accompanied by severe pains of the side, which are clearly of a neuralgic nature. The pains often precede the eruption, and puzzle both the patient and the doctor until the eruption begins to appear. Such pains are worst when shingles occur in older people. It is a case for advice, but the most effective medicine for the pain of shingles is quinine. It may be taken as follows:—Quinine, one grain; conserve of roses, enough to make a pill, of which one or two should be taken three times a day.

HOUSEHOLD LAW.—XX.

LAW RELATING TO KEEPING HORSES.

As it is the aim of almost every Englishman to keep a horse as soon as he can conveniently afford it, and as doubtless many of our readers are possessed of such a luxury, a few hints, perhaps, on the law which horsekeeping involves will save them much trouble, expense, and inconvenience.

To this end we subjoin a brief summary of the chief points of the law concerning the liabilities of owners, hirers, borrowers of horses, and their servants, sincerely trusting that by so doing the object we have in view will be achieved.

Letting a horse out for hire is a bailment of a thing to be used by the hirer for a compensation, and therefore the hirer of a horse is bound to use only such ordinary care in the management of it as a prudent man would exercise if it really belonged to him. Therefore, the owner of a horse is liable for any accident which may befall it when fairly used by the hirer, and which did not happen by reason of the latter's negligence. If a horse be let for hire for the purpose of performing a journey, the owner thereby warrants that it is in a fit and proper condition, and competent to perform such journey, and if the horse fall lame whilst performing such journey, the hirer may leave it at the place at which he discovers it to be unfit and give notice to the owner, whose duty it is to send for it, and the hirer is not liable for any expenses incurred in attending upon it, whether for medical aid or otherwise; and if the hirer calls in a farrier, he is not liable to the owner for any damage arising by reason of the farrier's unskilful treatment of the animal; but if, on the other hand, the hirer takes upon himself to prescribe for the horse, he is liable then for any injury that may happen to it on such account. And if the horse be hired for one purpose and used for another, the hirer, and not

the owner, is liable if any injury happen to it while in his hands. For instance, if a person hire a horse expressly as a lady's saddle-horse, he would be liable if an accident happened to it whilst driving it in harness. So, too, would he be liable if he kept it after a stipulated time, and again if he hired a horse to go to a certain place, and did not proceed by the usual road, he would be responsible for any accident which might happen to it when off the road.

In order, however, to make the hirer liable, the owner must produce positive proofs of negligence on his part—mere presumption will not suffice. Therefore, to entitle a plaintiff to a verdict in a case where his horse was returned to him by the hirer with its knees broken, he must produce some clear evidence of negligence on the part of the latter, the mere presumption of negligence on the ground that the horse was a good horse, and not in the habit of falling, not being of itself sufficient to charge the hirer.

The question of negligence is, of course, one for a jury to decide, and we can lay down no exact definition of the term, but a few examples may perhaps tend to elucidate its meaning. Thus, where a horse had exhibited symptoms of cold, and refused its food, and the hirer, in spite of this, drove it twelve miles, in consequence of which it grew much worse, the hirer was held liable; and when a horse was stolen in consequence of the hirer's servant having left the stable-door open during the night, the same consequences followed. We may as well state here that the hirer is responsible for the actions of his servants whilst acting under his instructions, but not for wilful and malicious injury done by them out of the course of their employment, and without his consent. For instance, if a servant drives his master's carriage against, and injures that of another person, the unfortunate master is liable; but not so if his servant wilfully strikes the horses of another, and thereby causes an accident.

The law casts on the hirer of a horse the obligation of feeding it, except in the case of a special agreement to the contrary; he is also liable for its shoeing, except in the case of an owner who lets his horses to be driven by one in his employ, in which case the owner himself is held responsible.

The law is more severe with regard to the case of an ordinary borrower, and makes him responsible even for slight negligence; for being what is termed in law a "gratuitous bailee," he is bound to take the utmost care of the animal that is lent to him. He must not even allow his servant to ride it; but at the same time he is perfectly justified in putting a competent person on the back of one that being for sale is sent to him for trial. He must not, in short, deviate in the slightest particular from the conditions of the loan, expressed or implied; if he does so, he must take the consequences.

It is often a difficult matter to decide whether the owner or hirer of a conveyance and horses, or horses alone, driven by the owner's servant, is liable in case of injury. The question which arises in cases of this kind being, whose servant the driver actually was at the time of the accident. Though we can draw no satisfactory line to show the precise point at which the responsibility of the owner ceases, and that of the hirer begins, we may lay down broadly the following rule:—That the owner is responsible in all cases but those in which the hirer takes upon himself the office of master by directing the servant to drive in a particular way. Thus, if horses are hired to draw a private carriage, and are driven by a servant of the owner, the latter is responsible in case of accident; but if the hirer sits on the box and directs the driver, then in that case the hirer, by thus taking command of the vehicle, makes himself responsible. When two persons hire a carriage together, they are both answerable for any damage consequent upon the negligent driving of one of them;

but if he be hired by one only, then the other is considered to be a mere passenger, and as such, not liable.

Having considered the relative liabilities of owners and hirers of horses, let us look now at the law affecting those persons not so directly connected with them—as livery stable-keepers, innkeepers, and “agistors,” which is the legal title for persons who take horses in to grass.

A *Livery Stable-keeper* is liable to the owner if his horse is lost whilst placed at livery with him. He cannot detain a horse for its keep, unless it was placed in his stables expressly as a security for a debt due to him from the owner; nor can he detain it for any money he may have expended over it at the owner's request; for instance, he cannot recover money paid by him to a farrier for medical attendance upon it.

The law on this latter point is exactly the same with regard to *agistors*. They, too, cannot detain a horse for the value of the “agistment.” They must use reasonable care in respect to the horses put out to grass with them, but they do not insure their safety. They are answerable for negligence to the same extent as liverymen, and are responsible if they leave their gates open, or keep their fences in such bad repair that the horses can get away. The agistor is not liable, however, for an injury arising from one horse kicking another, both being placed out at grass with him, unless it can be proved that the horse which injured the other was a vicious animal, and that the agistor was aware of that fact.

He has also a certain property in the animals placed out to grass with him, which gives him a right to maintain an action of trespass against a person who takes away any animal agisted with him. He can also bring an action of trover for it during the period of its agistment. One very awkward circumstance is connected with the practice of putting horses out to livery or grass, and one against which we must caution our readers. Horses in livery stables and at grass are *distrainable for rent*, except where they are merely standing awaiting their owner's pleasure, in the case of a livery stable-keeper, and where they have been put into a field to rest for one night, in that of an agistor.

But an innkeeper, by opening an inn, undertakes to receive and entertain all travellers till his house is filled, and to receive and keep the horses of those that come to his inn, otherwise he can be indicted for refusing to do so. He can, therefore, detain a horse for its keep, but not for that of its master. He is liable if a guest's horse be stolen, even if the owner be absent for several days, for he is presumed to be guilty of negligence whenever the injury does not arise from the owner's own act, the act of God, and the queen's enemies.

It very often happens that by a private arrangement the stables of an inn are let by the innkeeper to the ostler of the establishment, or some other person, whereby the innkeeper loses all control over them. This does not, however, affect his liability towards a guest who places his horse in the inn stables, but the latter's right of action against him remains unimpaired. Our readers will doubtless be glad to know that horses placed in an inn stable are *not* distrainable.

With regard to that much-abused and quick-witted race of men—the British horsedealers—we must make a few remarks. It is exceedingly difficult to say what constitutes a horsedealer, for it has never been decided whether a man who sells horses by commission is a horsedealer within the Assessed Taxes Act; nor does it appear that persons of an independent profession, who are continually buying and selling horses, and thereby making a great profit on them, are liable to pay the duty imposed by the Act. But if a man is really a horsedealer as laid down by the Act—that is, a person who gets his living by buying and selling horses—then he must take out a license, and pay a duty, which in London

is of the amount of £20, and in all other parts of England and Wales, which includes Berwick-upon-Tweed, £10.

Horsestealing, some years ago, when it was a capital offence, was a very favourite crime amongst the lower orders, but as soon as it was degraded to the level of a felony it went out of fashion, and at the present time cases of it very seldom occur. However, as it does sometimes happen that a horse is stolen we shall not be wrong in pointing out what proceedings ought to be taken in a case of the kind, when the horse is discovered in the possession of an innocent buyer.

To make the title of the purchaser of a stolen horse good, the following regulations (laid down by a statute of Queen Elizabeth) must have been complied with:—The horse must have been exposed in open market for one whole hour together between 10 A.M. and sunset, in the public place used for the sale of horses, and not in any private yard or stable, and afterwards brought by both the vendor and purchaser to the book-keeper of such fair or market, who shall enter its price and colour in a book, together with the names and addresses of the parties. Nevertheless, the owner can claim the stolen animal if, within six months after the sale, he notifies the fact of the horse having been stolen to some magistrate in the place where the animal is to be found, and within forty days after that proves it to be his property by two competent witnesses, and tenders the party in possession such price as he *bond fide* paid for it in the open market. In the case of a hirer selling a horse, the owner can prosecute him for larceny, and recover the animal's value from the person to whom it was sold, even though he be a *bond fide* purchaser and for value. And now with a few words on the sale of a horse we will conclude this subject.

In the case of the sale of a horse, the purchaser should take care that it is warranted “sound and free from vice;” for a mere warranty of soundness alone will not include a promise on the part of the vendor that it is free from vice as well. It is somewhat difficult to define the exact meaning of the term “sound,” but we may take it to mean, freedom from any hereditary disease, the possession of natural and constitutional health, and as much bodily perfection as is consistent with its natural formation.

Following this definition, we may set out the following defects and diseases as constituting unsoundness in a horse:—

Blindness, cloudiness of the eye, cataract, blood, bog, and bone spavin, broken back, broken wind, bronchitis, canker, chest founder, contraction of the foot, corns, cough, curb, dropsy, enlarged glands, enlarged hocks, false quarter, farcy, founder, glanders, grease, glaucoma, grogginess, grunting, gutta serena, kidney dropping, lameness, laminitis, liver disease, lung disease, mallenders, mange, navicular joint disease, nerved horse, nasal gleet, opacity of the lens, ossification of the cartilages, poll evil, pumiced feet, quidding, quittor, ringbone, roaring, saddle galls, sallenders, sand-crack, scab, shivering, sidebones, sprain and thickening of the back sinews, string-halt, thick wind, thrush, wheezing, whistling, and yellows. And the following also constitute unsoundness under certain circumstances only:—

Broken Knees, if they interfere with the action of the joint.

Capped Hocks, if resulting from a sprain, or when the bone is enlarged.

Rat-tail, in very bad instances.

Shying, when produced by short sight.

Splint, when it interferes with a horse's action.

Shingles, as long as the malady lasts.

Thoroughpin and Wind Galls, when they constitute lameness.

A vice on the other hand may be defined as a bad habit, either in the temper of the horse, so as to make

him dangerous or diminish his natural usefulness, or one decidedly injurious to his health.

The following have been held to be vices:—Backing, biting, crib-biting, gibbing, kicking, rearing, running away, shying, vicious to clean or shoe, weaving, and wind-sucking.

The purchaser of a horse warranted sound, but which turns out to be unsound, and can be proved to have been so at the time of sale, can only proceed against the vendor by an action on the warranty, and he need not either return the horse, or give notice of its unsoundness to the vendor. The purchaser, however, should tender the horse to the vendor as soon as the breach of warranty is discovered, in order that he may recover for its keep, but he is only entitled to receive recompense for such time as is required to re-sell the horse to the best advantage. If on the tender the vendor accept the horse, the original contract is at an end, but if he refuse to accept it, the purchaser has the remedy we have pointed out above. The vendor, however, is not bound to take it back again, and can bring an action if he likes for the price, to which an allegation and plea of breach of warranty will be no defence, but act merely in mitigation of damages.

COOKERY.—LXXIII.

FRENCH SAUCES.

Sauce Maître d'Hôtel Froide (Cold).—Mix up with a wooden spoon four ounces of butter, some parsley, and shalots, well chopped up, together with the juice of a lemon, pepper, and salt. When ready, pour over it the following sauce:—

Sauce Maître d'Hôtel Liée (Thickened).—Put in a stewpan a large spoonful of flour, some chives, and parsley, well chopped up, with four ounces of butter, and flavour the mixture with salt and pepper. Add to this two tablespoonfuls of water, and place the stewpan over a slow fire until ready. If this sauce should be too thick, it may be thinned with water to which the juice of a lemon has been added.

Velouté (Jelly used for Sauces).—Take some leg of veal, two fowls, four carrots, the same quantity of onions, into which a few cloves have been stuck, parsley, sage, and chives. Simmer them with a ladleful of *consommé*, and carefully remove any scum. When by evaporation the liquid has become thick, add to it some more *consommé*, and place the stewpan by the side of the fire to keep warm. Now prepare a *roux blanc*, and add some mushrooms. When ready, put some of the liquid from the stewpan into it, and mix thoroughly. Pour it into the stewpan, boil the whole gently for an hour and a half, and strain.

Sauce Aurore (Aurora Sauce).—Pour a sufficient quantity of *velouté travaillé* into a stewpan, and add two tablespoonfuls of lemon-juice, and flavour it with grated nutmeg and pepper. Then take the yolks of four hard-boiled eggs, and pass them through the holes in a cullender, and thus convert the eggs into a shape resembling vermicelli. Now place the vessel containing the sauce on the fire, and when it nearly boils add the eggs.

Bread Sauce, for serving with Partridges.—Moisten the soft crumb of bread in milk, and simmer it for about three-quarters of an hour, until it becomes of the consistence of thick bouillon. Then add some butter, and season with pepper and salt.

Sauce à la Crème (Cream Sauce), used for turbot, cod, and other fish, and also for vegetables.—Take a quarter of a pound of butter, a tablespoonful of flour, and a 'teaspoonful of parsley and chives, both the vegetables having been previously blanched, and chopped up as small as possible. Season with nutmeg, salt, and pepper. Put

the ingredients into a stewpan, with some butter, and a moderate-sized glassful of fresh milk or cream. Place the vessel on a gentle fire for a quarter of an hour, and stir its contents continually. If it becomes too thick, it may be thinned by the addition of a small quantity of milk or cream.

Sauce Tomate à la Bourgeoise (Tomato Sauce for the Middle Classes), used with meat, fish, and vegetables.—Take about a dozen tomatoes, and divide them into quarters. Put them into a stewpan with four or five onions cut into slices. Season the vegetables with thyme, parsley, and cloves, and simmer them with a quarter of a pound of butter for three-quarters of an hour, care being taken that the contents are frequently stirred, that they may not adhere to the sides of the stewpan. When sufficiently done, strain the sauce for use.

Sauce au Beurre d'Ail (Sauce with Garlic Butter).—Add some garlic butter (about half the size of an egg), and the same quantity of fresh butter, to some *velouté travaillé*, while hot, and mix them well together.

Sauce à la d'Orleans (Orleans Sauce).—Boil down at a gentle heat, in a glazed stewpan, some butter, shalots, and a little pepper in some tablespoonfuls of vinegar. When sufficiently done, add a few ladlefuls of *sauce brune travaillée*. Before sending to table, put in about four small cucumbers and a cooked carrot, all cut into squares; also place with them the whites of three eggs, boiled hard and cut up in a similar manner, and likewise four or five anchovies, separated in two portions and then divided into squares, and a spoonful of capers. Then put the stewpan on the fire for a short time, stirring frequently, and taking care that the contents do not boil.

Sauce aux Truffes (Sauce with Truffles).—Dress some truffles, previously cut in small pieces, in butter or oil. Then pour in a few ladlefuls of *velouté* and one large spoonful of *consommé*. Boil them for a quarter of an hour at a gentle heat, and strain. This sauce may be prepared without *velouté*. In this case the truffles should be dressed with flour, simmered in stock broth, and seasoned with pepper and *quatre épices*.

Roux Blanc (White Butter Sauce).—Put some butter and wheat-flour into a stewpan, and apply heat over a gentle fire until they become hot. While doing this, care must be taken that the contents are not allowed to become sufficiently hot to change colour or become brown. This preparation is used to give a proper consistence to various white sauces. When it is allowed to become brown while on the fire, it is used for dark-coloured sauces.

Purée de Homard (Lobster Purée).—Remove the flesh from a very fine lobster, and cut the best pieces into portions the size of small dice, and lay them aside on a plate. Now beat the spawn, with the rest of the inside, and some fresh butter in a mortar, and pass the soft mass through a metallic sieve, or cullender. Put this in a vessel heated by a water bath, and add the pieces of lobster which were previously cut into squares.

Sauce aux Homards (Lobster Sauce).—Pound in a mortar the spawn of the lobster, with some butter, and pass them through a sieve or cullender. Then remove the flesh of the lobster, and cut it into dice; now place them in a stewpan, with the butter just prepared, and some *sauce au beurre*, and having made them hot, mix them thoroughly together. Afterwards add a small quantity of cayenne pepper to season it.

Beurre de Piment (Butter seasoned with Pepper).—Work up some butter with powdered pepper, and serve it up as soon as prepared. The butter of other spices may be prepared in a similar manner.

Bretonne.—Cut up about twelve onions very small, and cook them with four ounces of butter, and season them with garlic, thyme, salt, and pepper. Let them remain until they become brown, and then add vinegar, sugar

and tomato sauce, and a ladleful of white haricots. When ready, strain, and add the haricots to the fluid that passes through the sieve, and mix them up, while hot, with four ounces of butter. This preparation may be served up either as a purée, or with the haricots as a *relevé*.

Sauce au Beurre d'Écrevisses (Sauce of Crab Butter).—Add a piece as large as an egg of the butter prepared from crabs, to a sufficient quantity of *velouté travaillé*, previously made hot, and mix them well together.

Coulis d'Écrevisses (Crab Jelly).—Remove the flesh from some crabs already cooked, and bruise them in a mortar. Then put them in a stewpan, with a table-spoonful of sauce and some good butter, and simmer the whole over a gentle fire.

Sauce Suprême (Supreme Sauce).—Pour a ladleful of *velouté* into a pan, with four times that quantity of strong fowl broth, and boil it down to half. When required for table, add a spoonful of blanched parsley, well chopped up, and some fresh butter, a little coarse pepper, and half a lemon. Mix the whole well together, and let it remain a short time on the fire, but do not allow it to boil.

Beurre de Homard (Lobster Spawn Butter).—Remove the spawn from a lobster, beat it up in a mortar with a piece of butter the size of an egg, and pass through a fine metallic sieve. This butter is of a beautiful red colour.

Persil Haché (Chopped Parsley).—Blanch some parsley dry on a cloth, and chop it up. When this is nearly done, pour a stream of water over the pieces to remove any juice they may contain, and then dry and chop them very small. Chopped mushrooms, shalots, &c., are prepared in a similar manner.

Vert d'Épinards (Green Colouring from Spinach).—Blanch some spinach in hot water, together with a small quantity of parsley, and small onions. Remove them from the water, allow them to cool, and squeeze them to remove all adhering water. Then beat them up in a mortar, and pass through a sieve, moistening them, if necessary, with sufficient stock broth to enable them to pass through the meshes.

Vert d'Office (Green Colouring for Kitchen Use).—Wash some spinach, pound it in a mortar, and squeeze them in a cloth to extract all the juice the leaves may contain. Boil the juice with some stock broth, and when it has curdled, strain it through a fine sieve.

Sauce aux Échalotes (Shalot Sauce).—Chop up some shalots as fine as possible, drain them in a cloth, then boil them with a glassful of vinegar and some coarse pepper. Afterwards add some *jus* and *glace de cuisson* to reduce it to the consistence of a jelly.

Sauce Hachée (Sauce with Chopped Mushrooms).—Chop up some mushrooms with the same quantity of shalots. Put them into a pan with half a glass of vinegar, and some coarse pepper. Place the vessel on the fire, and gently boil the contents until the vinegar has almost evaporated. Then pour in some stock broth, and continue to boil for a short time longer, until the whole is well mixed. When the sauce is boiled sufficiently, chop up a spoonful of capers, and a few small cucumbers, and add them to the sauce. Before sending to table, mix with the sauce, while hot, a small quantity of anchovy butter.

Sauce au Beurre (Butter Sauce).—This sauce is used with fish and boiled vegetables. To prepare it, season some flour with salt, pepper, nutmeg, and cloves. Mix it with some water into a paste, and work in some butter the size of an egg. Put the thin paste into a pan over the fire, and boil it for a quarter of an hour, then take it off, and add some fresh butter in small portions at a time, continually stirring the contents, to prevent the butter from rising to the surface. Afterwards add some vinegar, and mix thoroughly.

Sauce Poirade (Pepper and Vinegar Sauce).—Put a glassful of vinegar into a stewpan with some butter, add

some parsley, small onions, thyme, and a little pepper to season it. Put the pan on the fire, and allow it to remain until the vinegar has almost boiled away. Then add two table-spoonfuls of Spanish sauce, and one spoonful or more if required of stock broth, to render the liquid sufficiently thin to pass through a sieve.

CAGE-BIRDS.—X.

THE SKYLARK.

THE skylark (*Alauda arvensis*, Linnæus) is remarkable for its gracefulness, whether on the ground or on the wing; while singing in the air it moves its wings with ease and grace, as if to assist in the music as well as to give buoyancy, and sails along, bending its course into any curve, whether vertical or lateral.

In warm regions, where vegetation is apt to suffer from locusts, this bird, as it feeds its young on their eggs, and on worms, &c., is very useful in preventing the increase of these devastating pests.

The length of this bird is seven inches, of which the tail is three; and the stretch of the wings about thirteen inches. The beak is straight and cylindrical, terminating in a point. The bill is light brown, darkening towards the point; the under mandible yellowish at the base, but greyish brown towards the end. The iris greyish brown. The eyes of males are full and bright, and a yellow streak above each has something the appearance of an eyebrow. The feathers on the top of the head are dusky, edged with brown. The general colour of the bird is brown, mottled with darker brown, and edged in some places with a brownish yellow, which is more marked in the nest-feathers than after the bird has moulted. The legs and claws are dusky brown; the hind claw is very long, straight, and strong. The male is rather larger, and has a bolder appearance than the female; when handled it feels fuller. On opening the wings, the bands of feathers across are longer and more prominent in males; the hinder claw shorter in females.

Peculiar Formation of the Skylark's Feet.—The peculiar formation of its feet gives it great facility in running along a rough surface. The legs of the bird are long and strong, and the toes are detached from each other throughout their whole length. The firmness of its slow march, the velocity of its running among reeds or short osiers, and the ease with which it takes wing from surfaces apparently ill-adapted for mounting, are all worthy of observation. The lark walks on its toes, and the grass, which has the effect of a snare to some birds, is to it a succession of elastic cushions. When we look at the long and straight claws with which the toes, more especially the hind toes, of the lark are armed, and consider them with reference to walking—with the freedom of which we are apt to associate a smooth surface—we are led to think the bird is ill-adapted for locomotion; but when we examine the action of the foot we find that no organisation could be better. The three front toes and claws are spread wide, and the hinder one projects far in the rear, so that the extent of the foot ranges over a number of blades of grass, and it can run upon the grass without touching the soil. The weight being thrown alternately upon each foot, the elasticity of the grass aids not only in lifting the other foot, but contributes to its progressive motion, and assists in its vaulting perpendicularly into the air. Though the grass may be tall enough to conceal it when running, the elasticity of the muscles of its body, combined with the grass, project it into the air like an arrow, the head being erected and the tail depressed, in order to lessen the resisting surface as much as possible. In this way it will vault a foot above the tops of the grass, without touching a blade, before it begins to flutter its wings. This peculiarity in the feet of

the lark, and the manner in which it rises from the ground, are very serviceable to it in concealing its nest. The bird and also the eggs resemble in colour the clods among which they are placed, and as the sitting time happens when the herbage is long, the nest is not discovered by the rising of the old bird, the grass being so little agitated. The nest, though simple, is constructed with a good deal of care, but it is placed on the earth, without any concealment, which exposes it to many casualties. The lark selects her ground with care, avoiding clayey soils, unless she can find two clods so placed that no part of the bottom of the nest shall be below the surface. Over this the first layers are placed very loosely,

The hen usually lays four or five eggs; their colour is greenish white, spotted, streaked, and marked with olive or greyish brown. The incubation lasts fourteen days. As the lark does not hop, the young birds remain a considerable time in the nest, and consume a great deal of food, chiefly earth-worms and insects and their larvæ. The hen has two or three nests each year, the first brood being hatched about the latter end of April. Before the first moulting the nestling's feathers are dotted with white. Nestlings intended to be brought up by hand should be taken when about ten days old, and fed in the following manner:—Scald some hemp and add a little mawseed; also scald some crumb of bread, drain the



THE SKYLARK.

so that if any rain should get in at the top it may sink to the bottom, and there be absorbed by the soil. The edges of the nest are also raised a little above the surface, having a slope outwards, and are, as it were, thatched. The position in which the bird sits is a further security; the head is always turned to the wind; the feathers of the breast and throat completely prevent the rain from entering the nest at that side, while the wings and tail act as penthouses to the other parts; and, if the weather is violent, and the rain at a small angle with the horizon, the fore-part of the bird, upon which the plumage is thickest, receives the whole of it. When a violent whirlwind passes over the nest it occasions the bird great annoyance, and instances have been mentioned where their wings have been crippled in their attempts to resist its fury.

The skylark is not so direct in his descent during the period of incubation as he is at other times; he flies along the surface of the field, and alights at some distance from the nest,

water from it, and mix it with the maw and hemp seeds (black seeds of the poppy), making it into a paste, which must be fresh each day. With a piece of wood about four inches long and half an inch in width, and flattened at one end, feed the birds four or five times a day with the paste, and in about a month's time they will begin to feed themselves, when, by degrees their food may be changed to the same as the mature birds eat; viz., German paste, bread and hempseed, a little grated cheese, and also grated nut of liver—the last two ingredients being added to either German paste or bread and hempseed as occasional changes of food, to which hard-boiled yolk of egg grated may be added.

When nestlings are first caged, a longish cage, similar to a store cage, but without perches, is best; it should have a little hay in a corner, as young birds are subject to cramp, which is often fatal. Their food should be placed in a cup near the door of the cage, and having received it from the cup, they learn to feed themselves after they have been caged about three weeks.

The nestlings begin to sing when they are about a month old; they increase in power and improve in quality, gradually singing louder, before the end of the year; but those who wish to obtain good song nestlings or branchers should select good old preceptors, possessing the greatest variety of song and superior mellowness of tone; if good titlarks are likewise added, beautiful song-birds may be obtained. The natural song of a good mellow-toned lark is preferred to acquired song. To prevent them becoming broken-song birds, do not keep them while young with goldfinches, chaffinches, blackbirds, &c.

Branchers are young birds that are caught after they can feed themselves. They can be purchased from June to August; and there is no more trouble to feed them than old birds. They will learn to sing as easily, and become almost as tame as nestlings, and are less likely to die. It is necessary to have a good song-bird as a teacher, and keep them away from other birds.

The flight-birds are those which have moulted in the fields. About September they are to be found congregating, and are caught in large numbers. They are very wild, and do not sing freely, but are very useful as teachers for young birds.

There are several birds to which the name of lark is given, but the skylark is the one best known; wherever in this country man cultivates the soil, its cheerful note is heard. Early in the year it commences its song, and at early dawn and evening, from March to August, its cheerful melody helps to beguile man's labour. As it sings on the wing, and raises its song with its position, its music is sometimes heard at a greater distance than that of larger birds.

The lark is not only one of the most generally diffused of our songsters, but it is one of those that continue the longest in song. It is fond of cultivated and open districts, avoiding equally the immediate vicinity of houses, woods, lonely wilds, and coppices. It is not partial to places near the sea-side in winter. After the crops are removed, it scrapes with its claws, and picks from the husks the small weeds that ripen their seeds upon stubble when the crops are removed. Abundant as these birds are in the open cultivated counties of England, they are more numerous in some parts of the Continent. The plains of Germany swarm with them. After they have moulted they commence congregating, and about September or October they may be seen in large flights. In snowy weather they are commonly caught in large numbers.

Some of the males are selected for sale to the bird-dealers, who obtain them at lower prices than at any other portion of the year; the remainder, with the females, are sold to poulterers. They are so highly prized in Germany as articles of food, that the tax upon them at the city of Leipzig alone adds nearly a thousand pounds annually to the revenue.

ODDS AND ENDS.

To detect Adulteration in Ground Rice.—Macerate one part of the flour in five parts of water for an hour, at a temperature of from ten to twelve degrees centigrade. Filter the liquid as quickly as possible, and add five parts of picric acid. If other substances have been added to the rice, they will be at once discovered, as a precipitate will be thrown down. This is due to picric acid forming an insoluble compound with proteine compounds, which are contained largely in substances employed to adulterate rice, but only in small proportion in rice itself.

Essence of American Cedar-wood.—When the shavings of American cedar-wood (*Juniperus Virginiana*), produced by makers of cedar pencils, are macerated in rectified spirits of wine for some weeks, a crimson fluid will be obtained, which possesses the odour of that wood, and

which might be used as a perfume for the handkerchief if it were not for its colour, which would stain it. It may be employed to sprinkle the linings of muffs and other fur articles, to keep away moths. This tincture is also useful for cleaning the teeth. A well-known French preparation consists chiefly of this essence, with oil of peppermint. It is employed not only to clean the teeth, but also to rinse the mouth after smoking, to remove the smell of the tobacco-smoke.

Decoration in Indelible Ink.—Drawings or prints may be imitated with good effect in indelible or marking ink (nitrate of silver), as a means of decorating d'oyleys, finger-napkins, and similar articles. Stout, white jean should be employed, and for this kind of ink no previous preparation of the fabric is necessary; a moderately soft quill pen will be found best for executing the drawing, and the strokes should be made as quickly as is found consistent with firmness and accuracy. The work should be smoothed with a tolerably hot iron before it has become perfectly dry.

Transparent Painting: How to make a Mezzotinto Engraving resemble an Oil Painting.—This may be done by brushing over the back of the engraving with mastic varnish, which will render the paper something more than semi-transparent. The engraving can then be worked upon with ordinary oil-colours, and the paint may be laid indifferently upon the back or front, as the lines of the engraving will continue to show sufficiently plainly through the colour, and to serve as a guide to the painter. The shaded portions of the engraving will be found to serve as half-tones, but shadows and high lights must be added.

About Oranges and Lemons.—The fruit of the orange is both cooling and nutritious. Its juice contains citric and malic acids, with mucilage, sugar, albumen, and the citrate of lime. The lemon is similar in its composition to the orange, but contains much more citric acid, the quantity of this acid contained in lemon-juice being so large that as much as twelve ounces have been procured from a gallon of that fluid, while eight ounces in each gallon is the average quantity. It is owing to the quantity of citric acid contained in lemon-juice, that it is taken with wild fowl and goose to assist the digestion of that food. It is due, also, to the citric acid that the orange, lemon, and citron contain, that the juices of these fruits have so much power in the cure and prevention of scurvy.

Facts worth knowing about Sweet and Bitter Almonds.—Sweet almonds are rather indigestible, and afford but little nourishment, but great relief may sometimes be obtained in heartburn by eating a few blanched almonds. Bitter almonds, although they are employed in confectionery, and similar purposes, for the sake of their pleasant flavour, are injurious to the system from the hydrocyanic (prussic) acid they contain. In some persons they are capable of producing the most distressing symptoms. They are especially injurious to those suffering from affections of the liver and stomach. Bitter almonds have been much employed in the manufacture of various liqueurs such as noyau and ratafia, but their use is attended with injury to the system. The oil of bitter almonds, obtained by distilling the almonds with water, contains hydrocyanic acid, which should be removed from the oil before it is used for household purposes. This is done by saturating the hydrocyanic acid with potash, and then precipitating it in the state of Prussian blue by the addition of a salt of iron.

A Fact about Stale Bread.—It is commonly supposed that stale bread contains less water in its substance than when it is newly baked, and that it is for this reason that stale bread is harder than new. This, however, is a mistake, as it has been found that both newly-baked and stale bread contain about the same amount of water—forty-five per cent.

THE BEARD, SHAVING, RAZORS, ETC.

II.

Razor-strop Pastes.—The reddish matter with which one side of a razor strop is covered usually consists of a preparation called *crocus martis*—an oxide of iron made into a paste with hog's lard or spermaceti ointment. Many diversities and improvements have, however, been made in the preparation of this paste. The following are amongst the best:—1. Prepared putty powder (*i.e.*, finely-washed oxide of tin), one ounce; oxalic acid (powdered), a quarter of an ounce; and gum (powdered), twenty grains. These three ingredients should be mixed with water into a thick paste. 2. Suet and jeweller's rouge in equal parts, mixed together, the suet having been first melted down. 3. Spermaceti ointment, one ounce, and very fine emery-powder, two ounces, mixed well together into a thick paste. 4. Suet, one ounce; jeweller's rouge, one ounce; and blacklead, one ounce, well beaten up together, the suet having been first rendered down. 5. Diamond dust, one ounce, and the same quantity of red ochre, or very finely-powdered chalk, mixed into a stiff paste with water. These pastes are applied by being evenly and thinly spread over the strop, and smoothed down by the flat side of the blade of a knife, or rolled with a glass phial or other round instrument. Pastes are also made up into cakes for the purpose of convenience, in which form they are used by being rubbed upon the razor strop.

The finishing side of a razor strop is sometimes black, in which case it has been prepared with a mixture of very finely-powdered blacklead and hog's lard; but in other cases it is of simple soft leather, or leather that has been somewhat prepared.

Razor-paper.—A material known as "razor-paper" has been invented to serve the purpose of the daily use of the strop with greater ease and convenience. This material consists of smooth, unsized paper, one of the surfaces of which, whilst in a slightly moist state, has been rubbed over with an impalpable powder composed of calcined sesquioxide of iron and very fine emery-powder. The paper thus manufactured is cut into small pieces about five by three inches, and sold in packets for the purpose of wiping the razor with after shaving, which prevents the use of the strop being required excepting periodically.

Razor-strop Paper.—To answer the same purpose as applying fresh paste to the strop, a paper has been invented to be pasted occasionally upon the strop, when necessity requires, and moistened with a little oil. The composition of this paper is as follows:—Equal parts of paper pulp (estimated in its dry state), and of emery, and quartz, both in impalpable powder. These substances worked together are manufactured by the usual process into sheets resembling in solidity and thickness sheets of drawing-paper.

The Hone.—We have already alluded to the use of the hone. A hone is an instrument consisting of a slip of stone or petrified wood, fitted into a wooden case. After the razor's edge has been dulled by use, and when the strop is found insufficient, it is necessary to employ the hone. Few persons are, however, successful in performing satisfactorily the operation of sharpening their razors, which is termed "setting." The operation is performed by pouring upon the hone a portion of boiled linseed oil, and rubbing the blade of the razor to and fro upon its sides, so as to wear away, or thin, the steel near the edge. Both skill and sleight-of-hand (acquired only by long and constant practice) are required for the proper performance of this operation, and consequently razors are customarily sent to the cutlers to be re-set.

An instrument for sharpening razors by an improved method has been invented, of which the following account has been given in the *Journal of the Royal Institution*:

—The instrument consists of a cylindrical bar of cast-steel, three inches long without its handle, and about one-third of an inch in diameter. It is rendered as smooth as it can readily be made with sand, or, more properly, glass paper, applied longitudinally, and is then made perfectly hard. Before it is used it must be well cleaned, but not brightly polished, and its surface smeared over with a mixture of oil and the charcoal of wheat-straw, which necessarily contains much siliceous earth in a very finely-reduced state.

In setting a razor which has become dull, the edge—which must not have been previously rounded by the operation of a strop—should be brought into contact with the surface of the bar at a greater or less, but always at a very acute angle, by raising the back of the razor more or less, proportionate to the strength which it is desired to give to the edge. The razor should be moved in a succession of small circles from heel to point and back again, without any more pressure than the weight of the blade gives, until the object desired is attained. If the razor has been properly ground and prepared, a very fine edge will be given in a few seconds, and it may be renewed again, during a very long period, wholly by the same means.

Before using the razor it may be cleaned on the palm of the hand, and warmed by dipping it into hot water. The blade of the razor being first raised in temperature by the aid of hot water is thought possibly to assist the operation of this instrument.

The use of Hot and Cold Water, and the Preparation of the Beard.—The custom of washing the beard with hot water before shaving has prevailed to a great extent—so great, indeed, that hot water seemed to be an indispensable desideratum for shaving. The received opinion, however, is, that the use of *hot* water renders the skin tender, and that the beard may be best prepared by being well washed, before shaving, with soap and *cold* water; this *immediately* before applying the lather, which cannot be too thickly laid on. A warm razor, without doubt, shaves more easily than a cold one; it is therefore desirable to dip the razor into hot water before using it, and in the absence of hot water to hold it for a minute or so over a gaslight, or put it under the arm or in the warm bed. It has also been determined, with much reason, that the use of hot or cold water in shaving should be regulated in accordance with the description of beard, cold water agreeing with some best, hot water with others. One thing is certain with regard to the effect produced by hot water in shaving, that, while for a few hours the beard will appear more closely shorn, when such time has elapsed, the face will sometimes begin to wear a grimy appearance, and require fresh shaving before evening; on the other hand, had cold water been employed, in all probability the face would have remained sufficiently clean. The temperature of the hot water into which the razor is to be dipped, should be about 165° Fahr. The idea entertained by many persons that the dipping of the razor into such water damages the temper of the steel is without foundation. Even boiling water will never damage the steel of a razor, as no heat of less degree than that at which the blade was tempered could in any way affect the tempering of the razor. Suppose the water to be at boiling heat, it would then be very many degrees below that at which the steel was tempered, therefore hot water can never impair the temper of the razor. Indeed, the expansion of the steel occasioned by dipping the razor into hot water is generally found conducive to its efficiency against the beard, although cases have existed in which the opposite has been the effect; the employment, therefore, of hot or cold water must depend in some measure upon the opinion and experience of the shaver.

The chief point in preparing the beard for shaving is to render it as soft as possible, in order that it may the more

readily admit of the action of the razor, for it is much easier to cut a soaked bristle than a dry, hard one. If you shave whilst the beard is harsh, you will, in all likelihood, render the skin tender and irritable, as well as impair the edge of the razor. The best method to secure easy shaving is to employ the plan adopted by Eastern as well as Spanish barbers (who are famed for their skill in the art of shaving); viz., to well wash and rub the beard with soap and cold water, using the hand or a stiff shaving-brush for the purpose, before applying the lather; for if you do not do this, unless the razor be extraordinarily keen-edged, the beard is subject to be dragged, and a painful sensation produced to the skin. Too much lather cannot be applied to the face. Various plans have been devised and adopted for producing this lather. The soap-dish or shaving-box is a very usual one, but at home such apparatus is at best an unsightly nuisance, and in travelling is, without doubt, really inconvenient. This appendage to shaving may easily be dispensed with, as a cake of soap, moistened at one end, and rubbed upon the chin, afterwards worked into a lather by the brush, tends far better to the result of easy shaving than ever lather worked up in a box, and spread upon the face can do. By the latter means time and exertion are wasted, while the friction and soap upon the beard would have a most beneficial effect. The lather should neither be over thick nor over thin; if it be too thick, dip the brush into the water, once or more, as the case may require, afterwards gently shaking it. By this means a good lather will be soon formed upon the face. A most effective plan to secure easy shaving is to lather the face *twice* over, that is, to wash off the first lathering, and wipe the face quite dry, after which to repeat the process, forming a *fresh* lathering upon the face. If these rules be observed, *easy shaving* cannot fail to be the result.

Directions for Holding the Razor.—The razor should be held between the thumb and the two first fingers. It should be kept *nearly* flat to the face; moved along in a sawing fashion, the skin of the part to be shaved being stretched as tightly as possible with the other (the left) hand, for the purpose of producing a smooth, even surface, and for throwing out the beard.

Tenderness of the Skin.—It is not at all an uncommon thing for the skin to be rendered very tender and irritated by the action of the razor and the alkali of the soap. Sometimes sores are the result, and sometimes rawness, accompanied by bleeding. To remedy this mischief, the application of a little sweet oil before lathering will be found a most effective means; the alkali of the soap will then act upon the oil instead of upon the skin. It is to be observed, moreover, that this use of oil to the skin before lathering aids in producing a more enduring lather, the moisture contained in the lather not being absorbed by the skin, as otherwise it is wont to be.

Soaps for Shaving.—We now come to the last point regarding shaving—the selection of soaps. For most beards this point is immaterial, but where a choice is to be made, what is called “Naples soap” may be preferable. We would recommend to those of simple taste the best yellow soap, as surpassing in efficacy and purity all kinds of scented soaps. There are soft soaps especially manufactured for shaving. They are kept in readiness in boxes at the perfumers’ and hair-dressers’.

A good shaving paste may be made by melting together white wax, spermaceti, and almond oil, each a quarter of an ounce, and, while warm, beating up with rose-water and a cake or two of Windsor soap. A shaving oil or liquid may also be made by dissolving a quarter of a pound of Castile or soft soap, in half a pint of spirits of wine.

In a former paper, p. 208, vol. iii., we described various kinds of soap which possess properties rendering them very agreeable for toilette purposes, especially for shaving.

CHILDREN'S DRESS.—XIX.

CLOTHING FOR A BOY OF TEN YEARS (*continued from p. xi.*)

FIRST of all we will allude to the flannel under-vest. The size of this must be regulated by the size of the boy. Either make it of shrunk flannel, which is the best plan, or make it much too large. Flannel can be purchased of different widths, and the vest must be made of flannel which is wide enough to cut a front out of one breadth and a back from another. Double it at the top, and measure the length. Slope it off towards the shoulders till it is the required width there. The vest is represented by Fig. 1. If made of shrunk flannel, it should be a few inches shorter than the shirt. A curved line, marked A, will be noticed in Fig. 1. We strongly recommend cutting the front away by this curve, and giving the corresponding curve, B, to the back. To save any waste of stuff, lay your breadth of flannel on a table, having measured the half at D D, Fig. 2, and cut it in the curve, C. To cut this alike on both sides, double the flannel down the centre, like Fig. 3, and cut the half curve as shown there, making sure the commencement of the cut, D, is at the centre. Having cut the flannel at C in Fig. 2, fold A B of piece 2 to A B of piece 1; then slope it off at A B, as narrow as the shoulders may require. Leave open the piece at C C, Fig. 1, and run and fell the sides up to the arm-hole. Cut pieces for the shoulders like Fig. 4, and as long as the vest measures from E to U. Allow enough for a hem. Join these on where they are shown in Fig. 1 by placing one piece of the flannel a little over the other, tacking it in place, and then herring-boning both edges. Next cut the slit down the front from U to F. Bind one edge with a false muslin hem, and the upper edge with a deep double piece of muslin, on which make button-holes. Sew buttons on the under side, but first enclose the throat in a muslin band, half an inch wide, double. The muslin used is rather fine stout cambric. Herring-bone the thin part of the sides; also the hem all round the bottom. For the sleeve, cut a piece like Fig. 5, merely straight; for the sleeve gusset, a piece like Fig. 6. Join A of the sleeve to A of the gusset, and B of the sleeve to B of the gusset. Herring-bone the edge of the sleeve, and herring-bone the sleeve into the arm-hole. The vest is now complete, and only needs to be marked with the name.

Fig. 7 is a design for a night-shirt. Cut a straight piece of long-cloth double, as long as the boy's height requires. We recommend boys' night-shirts to be made to descend to the ankles, like girls' night-dresses. Leave the side seams open to A at the bottom, and to B at the top for the sleeves (Fig. 8). Run and fell together both sides between A and B. Hem narrowly the open part from A to the bottom, and put in a small gusset, or make a button-hole loop across at C; hem the bottom half an inch wide. Hollow out the neck at the lines at D; the upper one is for the back, the lower for the front. Cut open the shoulders from E to E. Cut four shoulder-pieces like Fig. 4; pipe the long sides of two of them. Gather the straight parts of the shoulder of the shirt from E to D, both sides, and back and front. Draw them up, and stitch to the pieces F, F, in Fig. 8, the front to one side and the back to the other of each piece. Hem on the other two pieces, shaped like Fig. 4, to bind these. Cut open the front from D to G; make a narrow hem one side and a broad hem the other, or make false hems. Gather any superfluous material at G. Bind it on the wrong side with a piece of tape, from H to H if necessary. Set the neck in an inch-wide and double upright collar; put on ribbons, and make button-holes. Cut a straight piece of stuff as long as the arm, down the long-cloth, like Fig. 9, which shows it double; leave this open as far as A for a gusset, cut like Fig. 6. Run and fell the sleeve together

to A; insert the gusset. Set the cuff into an inch-wide band large enough to slip over the hand, and requiring no button; set in the end with the gusset from E to B, Fig. 8. This completes the night-shirt.

Fig. 7 also offers a good pattern for a flannel over-shirt.

B. Instead of running and felling along, simply herring-bone the seams. Cut an opening at D to G, Fig. 8; make a couple of wide hems, inch wide; stitch one across the other at G. Cut open the shoulders, and put in the shoulder-pieces, but without piping. Set the neck in an

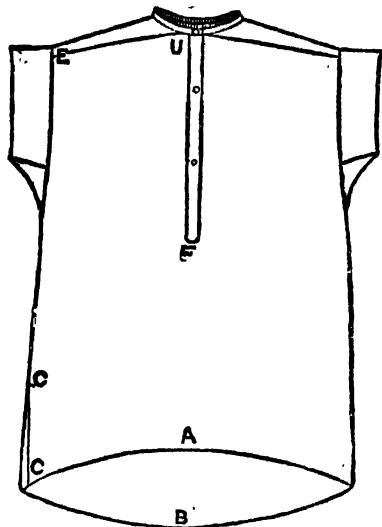


Fig. 1



Fig. 5.



Fig. 6.



Fig. 4.

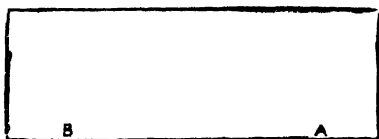


Fig. 9.

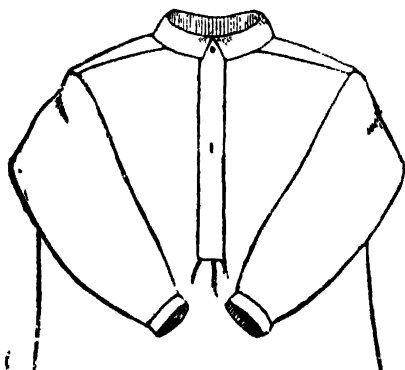


Fig. 7.

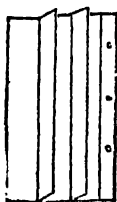


Fig. 18.

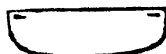


Fig. 13.

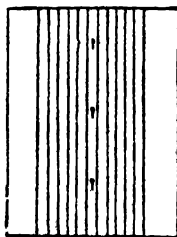


Fig. 16.

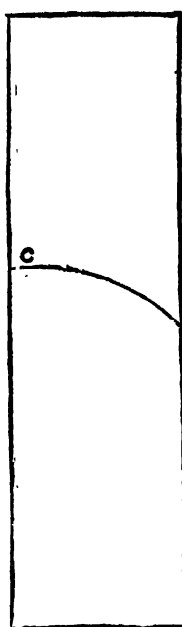


Fig. 3.

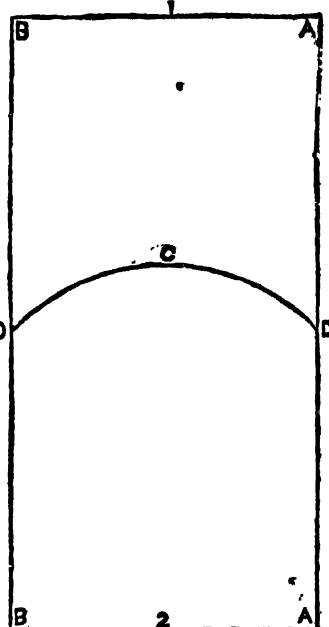


Fig. 2.

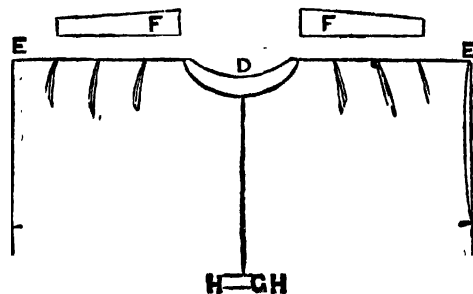


Fig. 8.

Purchase flannel of any neat pattern, ready shrunk; if not ready shrunk, shrink it. Cut it first like Fig. 8; then slope it off each side, like Fig. 11, till it is narrow enough on the shoulders. If the flannel is not wide enough for this, which seldom occurs, make it like a girl's night-gown, cut off the gore A, Fig. 12, and reversing it, add it to the side

inch-wide band, stitched on; make button-holes and sew on buttons. Next cut the sleeves, as described in Fig. 9. Use no gussets. Leave open the wrist to B; herring-bone the opening, set it in a band, and at the other side of the band stitch in a cuff. The band is necessarily in two pieces to enclose the sleeves on one side and the cuff on

the other. Fig. 13 shows the cuff, which has a hole at each side for a stud.

For white day-shirts, first cut out the long-cloth, which should cost about a shilling a yard, like Fig. 11, and shape it like Fig. 19. The sides are now run and felled, or sewn

one side button-holes and on the other buttons are placed. Each piece looks like Fig. 18. Button these together, and further, to make them secure, tack them on the front (see Fig. 16); lay this on the shirt (see Fig. 19) and tack it to the front piece. Turn in an edge all round, and again tack this;

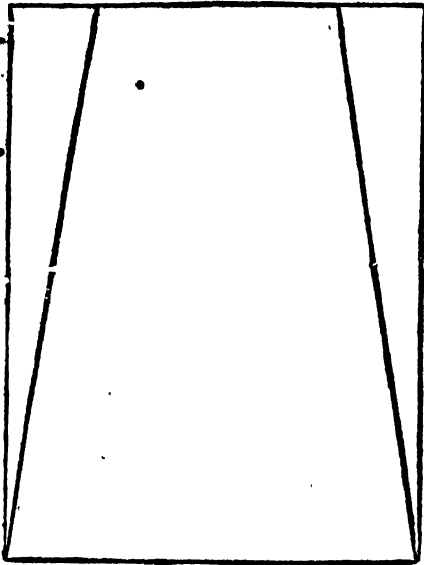


Fig. 11.

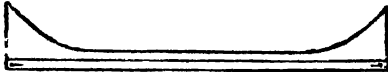


Fig. 15.

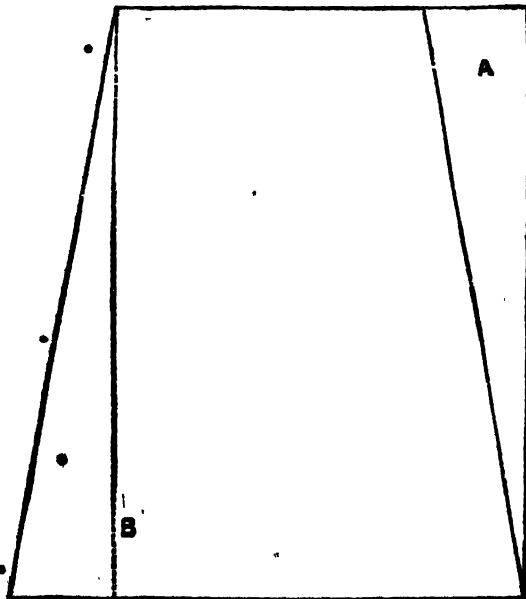


Fig. 13.



Fig. 20.

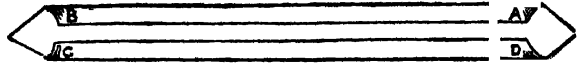


Fig. 21.

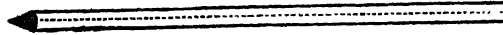


Fig. 22.

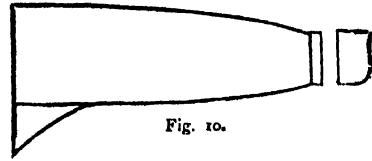


Fig. 10.

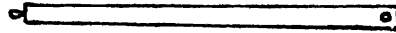


Fig. 14.



Fig. 17.

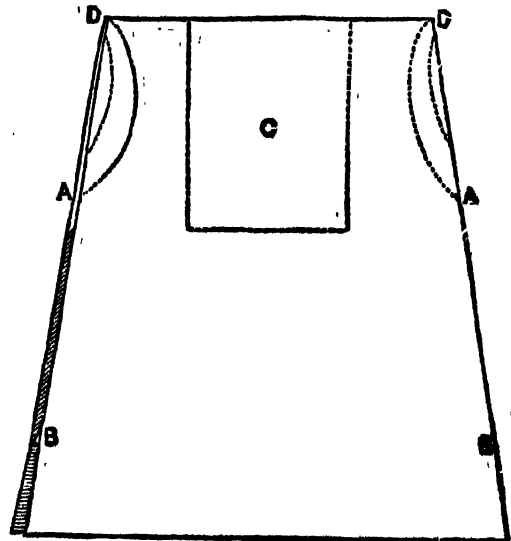


Fig. 19.

and felled, leaving the tops open to A, the bottoms to B, as in Fig. 8. At B a gusset is let in, the open part hemmed very narrowly, and the bottoms hemmed about half an inch wide. A piece of linen is now cut and is divided in half at the dotted line. An inch-broad hem and a two-inch broad tuck are folded, tacked, and lastly stitched; and on

now stitch it near the edge, turn the wrong side, and cut out the piece of calico square under the front. Turn in the edges, tack it, stitch or neatly hem this down. Now set the shoulders, D, D, Fig. 19, already cut open before the front is laid on, into a shoulder-piece like Fig. 17, which is piped, and lined with a similar piece. Cut the sleeves like Fig. 9.

Set in the gusset, the cuff, and the wristband, like Fig. 10. Fig. 13 is a design by which to cut the wristband out. Make it of two pieces of linen; run them together near the edge on the wrong side all round the sloped edge. Turn them very exactly, tack together near the edge, then stitch all round the curved edge. The right side of the wristband is run over the right side of the cuff, and the wrong side of the wristband neatly hemmed to the wrong side of the cuff. The neck is set in an upright band, with or without a collar. When the collar is to be buttoned on, a button is placed in the centre of the neck, at the back as well as in front. The sleeve should be run and felled, as it sets better if the arm-hole is hollowed out in front, as shown in Fig. 19; the back should be very slightly hollowed.

The Collar (Fig. 15) is to be cut on the straight, stitched round the edge, and placed in a half-inch wide band, with three button-holes. Care must be taken to make the collar fit the neck of the shirt exactly, or it will never sit right.

Neckties and Cravats.—There are two ways of making boys' neckties, which may often be economised out of stray pieces of silk, or old black silk renovated by sponging it with ammonia and water, and ironing on the wrong side. The cravat should be an inch wide. To make it, cut a length of silk three inches wide, and long enough to go round the neck and tie. Cut the ends in exact points, like Fig. 20; very narrowly and neatly hem these with sewing silk; fold down one side, and iron it, or bend it, or tack it in place, like Fig. 21, at A to D; turn down a little bit of the other side, B to C; then fold again, as shown in Fig. 22; very neatly hem it, being sure not to take the stitches through the right side. A way for boys who cannot always tie their cravats neatly, is to make them to button on. To do this, measure enough for round the neck, and cut off the ends, one two inches longer than the other. Take the centre piece, which must be an inch and a half longer than the neck is round, turn in the ends, and neatly sew them over. Put a button on one side, and make a loop the other (Fig. 14); allow the cravat to wrap over an inch or so. There are two ends remaining. Take off two inches of the largest. Cut two pieces for bows, leaving two for ends. Make up the bows and ends with the two inches round them as a knot.

Under-drawers.—These can be made of flannel or stout long-cloth, varying according to the season of the year. Join the legs together at the back and also partly up the front. Make a couple of wide hems down the front. In flannel these should be false hems of muslin. Cut open the sides, and make narrow hems. Hem the knees. Set the waist into a band in three pieces. There are two pieces for the front, buttoning an inch over in the centre of the front, and the sides of the front button each an inch over the back. Some mothers put the knees into muslin or long-cloth bands, with buttons, and make loops to the stockings to fasten to these as a substitute for garters.

Every portion of the clothing of boys sent to school should be marked with their entire surname, and the initial of the Christian name. To do this, write it with marking ink, at intervals, on a piece of half-inch wide tape, as many times as the boy has articles of woollen clothing. Cut these apart neatly; hem one each on his jacket, vest, knickerbockers, flannels, and one on each sock—of course placing them where they will be out of sight when in wear. It is well also to tack one inside the umbrella. Linen clothing can have the name written on it. Do not forget, also, to mark the neckties. Inside boots and slippers it is easy to write the name on the lining. For a hat, write it on paper and paste it inside the crown. Otherwise the articles belonging to various boys are liable to be mixed and lost, and unnecessary trouble is also entailed on the master or housekeeper.

VARNISHES.

VARNISHES are generally divided into the three classes of spirit, essential oil, and fixed oil (or fatty varnish), according to the liquid in which the resins forming them are dissolved.

The spirit varnishes are those prepared by dissolving resins in spirit of wine or naphtha. They are usually made by breaking the resins into small fragments, so as to allow the solvent to act the more readily on them, and are placed in a stone jar, or varnish tin, and the spirit of naphtha poured over them. The vessel is then placed in a warm situation for a certain time (the duration of which depending on the solubility of the materials employed), until they are entirely dissolved. When the resins require a higher temperature for solution, they are heated with the solvent in a vessel constructed for the purpose, surrounded by boiled water, by which they are kept at a moderate and uniform heat. These varnishes have the great advantage of being easily prepared, and they flow well from the brush, and can thus be readily applied, and when made with rectified spirit of wine they have no unpleasant smell like the other varnishes. When naphtha is used for this purpose, although it dissolves the resins more readily than spirit, it possesses a disagreeable odour. At the present time, owing to methylated spirit of wine being so much cheaper than pure spirit, it is almost exclusively employed for this purpose.

When varnishes, in which the resins are dissolved in spirit or essential oils, are applied to any surface, the solvent evaporates, leaving a coating of the resin employed on the article varnished. But in the case of the fixed oil or fatty varnishes, the oil does not evaporate, but becomes converted into a solid coating, owing to the absorption of oxygen from the atmosphere.

Varnishes prepared with rectified spirit of wine or naphtha, although when carefully made, dry rapidly, and with a bright surface, yet have the great disadvantage of not being able to resist moisture. For this reason they cannot be employed for out-door work, where they would be exposed to the action of the atmosphere. Even for surfaces that are not so exposed, they are liable to crack and peel off, and are not so capable of resisting moisture as the other kinds of varnish.

The second kind of varnishes, prepared with the essential oil, or spirit of turpentine, although they dry much slower than those prepared with spirit, are found to wear better.

The third kind, known as the fatty varnishes, consist of resins dissolved by heat in drying linseed or walnut oil, and turpentine. Although these varnishes dry slowly, not being so brittle as the other kinds, they are more durable. They are also so hard, that they are capable of being polished, and are able to withstand the action of wet. They are therefore the only kinds of varnish usually employed for out-door work, and other purposes where they will be exposed to the vicissitudes of the weather.

When oil of turpentine is employed in the manufacture of varnishes, care should be taken to procure it as old as possible—varnishes thus prepared being found to dry quicker and harder, and wear better than when the new oil is employed.

Linseed oil cannot be used in making varnishes until the mucilage it contains has been removed, since the mucilage, if allowed to remain, would prevent the varnish becoming dry and hard, in consequence of its hindering the absorption of oxygen from the atmosphere, by which the drying and hardening of the varnish is produced. Linseed oil may be rendered drying, by boiling it for a considerable time with some preparation of lead, such as the oxide. For this reason, the ordinary drying linseed oil is known in the shops as boiled oil. Sometimes other substances, such as magnesia, are employed, instead of

the oxide of lead, for this purpose. The sulphate of lead is also employed in the following manner:—Rub up the linseed oil with some dry sulphate of lead, so as to produce a milky mixture, and pour it into a glass bottle. Place the vessel in a window, or other place where the light can gain access to it, for a week. During this time the bottle must be frequently shaken, to keep the sulphate of lead suspended as much as possible in the oil. At the end of the week the mucilage will be found deposited as a thick layer at the bottom of the vessel, and the linseed oil may then be poured off clear. It may then be used for the manufacture of varnishes. When varnishes are made, it must be carefully remembered that, whether prepared with spirit, essential or fixed oils, the varnishes must never be kept in a damp place, otherwise they will absorb moisture, and becoming dilute, will deposit some of the resin they contain, and thus become milky. When this happens, the varnish is said to have become "chilled." The varnish may, however, be restored to its former condition by introducing some coarse and warm sand, which will absorb the moisture present.

Common resin dissolved in boiling linseed oil forms a brilliant hard varnish, which is sometimes employed by house-painters for varnishing common out-door work, but it is found to wear badly and is very apt to crack and peel off.

A similar varnish is also prepared by dissolving the resin in oil of turpentine instead of linseed oil; but, although this preparation dries quicker than the last, it will be found to wear even worse than the other.

Resin also enters into the composition of the common wax varnish employed for tables and other articles of furniture. This varnish is prepared by dissolving one drachm of resin and two ounces of bees-wax in one pint of oil of turpentine. In manufacturing this or any other kind of varnish, it is necessary to be very careful that all the resins employed, before being used, should be carefully washed in hot water, to remove any dust or dirt that may adhere to them.

Shellac enters into the composition of many varnishes. When dissolved to saturation in strong liquid ammonia, it forms a varnish suitable for toys and similar articles. When dry, the surfaces thus coated look well, but they must not be exposed to the action of moisture. A colourless shellac spirit varnish may be thus prepared:—Put five ounces of shellac in two pints of lightly-rectified spirit of wine, and, when dissolved, bleach the resin by the addition of ten ounces of recently-prepared animal charcoal, and strain the clear varnish for use through silk (not linen, which absorbs too much of the fluid), and afterwards through filtering paper. Shellac is usually purchased already bleached for varnish-making. This is done by passing a current of chlorine gas through a mixture of shellac in water until the colour is quite removed and the resin becomes perfectly white. When seven and a half ounces of bleached shellac are dissolved in one pint of rectified spirit of wine and then strained, and one and a half pints more spirit are added, it forms an excellent, hard, and durable varnish for white wood furniture.

Shellac spirit varnishes very often contain sandarac, especially those employed for white or light wood, but the addition of this resin will be found to render them softer and less durable. A varnish for the inside of carriages is composed of pale shellac, ninety-five parts; sandarac, one hundred and ninety parts; common resin, one hundred and twenty-five parts—dissolved in one thousand parts of methylated rectified spirit of wine, and then one hundred and ninety parts of turpentine are added. An excellent varnish for violins and similar musical instruments may be prepared with shellac, two parts; sandarac, four parts; mastic, two parts; elemi, one part. The resins are coarsely powdered, and then rubbed up with four

parts of powdered glass; the resins are then digested at a gentle heat in thirty-two parts of methylated rectified spirit of wine until dissolved, and two parts of Venice turpentine are afterwards added to the strained solution. Sometimes mastic is added to shellac varnish, as in the following form:—Pale shellac, seven hundred and fifty parts; gum mastic, sixty-four parts; dissolved in one thousand parts of methylated rectified spirit of wine.

When the resins are being dissolved they should be frequently stirred, and the vessel well shaken. It is also necessary to place the jar containing them on warm bricks, or in hot water. This varnish is used principally by cabinet-makers: it is thick, and is employed without being strained. If this varnish is diluted with a large quantity of proof spirit, it forms bookbinders' varnish, for the covers of books and similar purposes. It may also be used for the leather coverings of sofas and chairs.

Mastic is a soft resin, and is met with in commerce in the form of mass, or tears. The latter, being the purest, should alone be employed in the manufacture of varnishes. When dissolved in oil of turpentine it forms a very pale varnish, which possesses considerable brilliancy when dry, and which flows readily from the brush. This varnish is much employed to preserve oil paintings from the action of the atmosphere, owing to the ease with which the dried varnish may be removed, when soiled, from the surface to which it has been applied, by gentle friction with a soft linen cloth.

A brilliant varnish, but which will not bear friction, may be prepared with mastic, thirty-two parts; sandarac, one hundred and twenty-five parts; elemi resin, sixteen parts; dissolved in five hundred parts of methylated spirit of wine. When dissolved, thirty-two parts of Venice turpentine are to be added to the clear solution. Varnish for maps is prepared with six parts of mastic and three of sandarac, rubbed up with four parts of powdered glass; the resins and powdered glass are then digested at a moderate heat in thirty-two parts of spirit until dissolved; three parts of Venice turpentine are afterwards to be added. Continue to keep the fluid at the same degree of heat until the turpentine is dissolved, and then strain through thin calico. The reason for using the powdered glass in these and similar cases is to separate the portions of resin, and thus enable the liquid employed as a solvent to act on them the more readily.

Three ounces of mastic, and half that quantity of sandarac powdered, and rubbed up with two ounces of crushed glass, dissolved in one pint of rectified spirit of wine, form an excellent varnish. To prepare it, the resins are placed with the spirit in a stone jar, or tin, and kept for three days in a warm situation, stirring or shaking the bottle frequently. When dissolved, take an ounce and a half of Venice turpentine, melt it, and add to the varnish, stirring the whole frequently until dissolved. The liquid is then to be kept in the warmth for another week, and then strained.

Copal is much employed in the manufacture of varnishes. The best kind of copal—which is very clear and pale—is known as "body gum," from being employed in varnishes used for the bodies of coaches. The next quality is named "carriage gum," and is used in the varnish applied to wheels and other parts of carriages. The inferior kinds are used for japan-black, gold-size, and the commoner descriptions of varnish. Although gum copal is but slightly soluble in rectified spirit of wine, its solubility may be increased by powdering it, and then exposing it to the action of the atmosphere for about a year. It may also be rendered more soluble by melting the resin, previously to powdering. The solubility of copal in rectified spirit of wine is also increased by the addition of camphor or oil of rosemary.

A cheap, but very disagreeably-smelling copal varnish

may be prepared by dissolving powdered copal in equal parts of rectified benzole and spirit of wine. The varnish for the faces of Dutch clocks is prepared by melting four parts of clear gum copal in an iron vessel, and applying heat carefully. When the gum melts, and ceases to give off vapour, one part of linseed oil, previously made hot, is poured in and well mixed. Then a sufficient quantity of oil of turpentine to form a varnish is added.

Varnish for violins and similar articles is prepared in the following manner:—Melt some copal in an iron pan over the fire (taking care that it does not ignite), and then allow it to become cold, and reduce it to a fine powder. Put one ounce and a half of this copal into a pint of rectified spirit of wine, and add one ounce of mastic and half an ounce of elemi. Keep the varnish in a warm place, frequently shaking the vessel that contains it, until dissolved. Then add one ounce of melting Venice turpentine. In this and other preparations the elemi is added to make the varnish dry quicker. Varnishes which contain it, dry as hard as when made with amber. When dry they have a brilliant polish, but their employment is attended with the great disadvantage of being rather apt to crack. It is also found that varnishes thus prepared have a tendency to become darker when exposed to the atmosphere, which is a serious inconvenience if the varnish has been employed to varnish delicate-coloured surfaces. A wood varnish, much employed for toys, consists of copal, seventy-five parts; dissolve with the aid of camphor or oil of rosemary, in one hundred parts of rectified spirit of wine, and strain the liquid through linen; then put in thirteen parts of mastic, and dissolve it in the clear solution; lastly, melt six parts of Venice turpentine in a water bath, and add it to the liquid. This varnish dries well, and will be found to bear polishing. In preparing this and similar preparations, it is necessary to employ a moderate heat, to render the resins soluble, taking care not to employ a higher temperature than is absolutely necessary, as it will be found that the lower the heat at which a varnish is prepared, the more durable it will be when dry.

A flexible copal varnish, for leather work and similar purposes, may be prepared by dissolving eight parts of powdered copal in forty-five parts of oil of spike, to which one part of camphor has been previously added. The essential oil is made hot, and the powdered copal added in small portions at a time—a fresh portion being dropped in as soon as that previously added is dissolved. The copal varnish employed for the under portions of carriages is made by taking twelve parts of powdered copal which has been previously fused, and dissolving it in twenty parts of oil of turpentine and half a pint of camphor. When dissolved, if the varnish is not sufficiently thin, it may be rendered so by the addition of a sufficient quantity of oil of turpentine.

CONFECTIONERY DAINTIES.—I.

Marmalade Cakes.—Mix together a quarter of a peck of flour, with half a pound of refined sugar dissolved in ten spoonfuls of water, half a pint of yeast, a pound of currants, two ounces of candied lemon-peel, cut in thin slices, half an ounce each of cinnamon and mace grated, a quart of milk, ten eggs beaten up, and about a pound of orange marmalade. Bake the cakes at a moderate temperature, and ice with loaf-sugar and white of eggs.

Banbury Cakes.—Take three pounds of currants, a pound of butter, four ounces of loaf-sugar, a quarter of an ounce of mace, with the same quantity of cloves, and half a peck of flour. Then make it into a paste with boiled milk, and three-quarters of a pint of ale yeast. Place the dough near the fire to rise; knead it well before it is made into cakes.

To make a Hedge-hog in Confectionery.—Beat up about two pounds of blanched almonds with a little water and sherry into a stiff paste; then pound up with it a pint of cream, twelve raw eggs, and enough loaf-sugar to sweeten it. Put the paste in a pan over the fire, and mix with it half a pound of butter, which must be continually stirred into it. When the paste has become sufficiently stiff by boiling, make it into the shape of a hedge-hog. Imitate the bristles by means of blanched almonds slit, and place the hedge-hog in a dish. Then boil some cream with sugar, and the yolks of a few eggs, and when ready pour into the dish round the hedge-hog. Let the dish get cold, and send it to table.

Jamelloes.—Mix a pound of powdered loaf-sugar, and a quarter of an ounce of ground caraway seeds, with four eggs, and a small quantity of tragacanth dissolved in a sufficient quantity of water to make them into a paste a little softer than butter. Pass the paste through a butter-squirt, so that it may be poured into pipes the thickness of a straw, and dry them on paper. Then boil them in syrup.

Barley Sugar.—Prepare some strong syrup, and boil it as much as possible without allowing it to change colour. Then strain into it a strong decoction of barley. Remove the syrup from the fire, and allow it to settle; then pour it out on a marble slab previously well oiled. When the barley sugar is cold, cut it in pieces, and roll it into sticks of the proper shape.

Lemon Drops.—Pour some lemon-juice on some finely powdered loaf-sugar, and boil to the consistence of thick syrup. Drop this on plates, and put them in a warm place to dry. They are then to be taken off the plates, and preserved in well-stopped vessels. If preferred, some of the lemon-peel may be cut small and then added to the syrup.

Another Way to make Lemon Drops.—Pour four ounces of lemon-juice over a pound of loaf-sugar, and also the same quantity of rose-water. Boil them into syrup, and then add some grated lemon-peel, and mix them well together. Then proceed as previously directed.

Sugared Aniseeds.—Dry some aniseeds in a preserving-pan, and then cover them with syrup in the manner directed for smooth almonds.

To Ice Pastry.—Mix a pound of loaf-sugar very finely powdered with the whites of two eggs and four spoonfuls of water. Continue to stir them until the icing is used. To use this liquid, apply it to the surface of the pastry with a feather when the articles are nearly cold, and then place them in a cool oven to harden.

Rich Cheesecakes.—Beat up half a pound of butter, add to it three raw eggs, and half a pound of powdered loaf-sugar. Mix with them four ounces of ground rice, and some grated orange-peel.

Rhubarb and Lemon Jam.—Boil in a preserving-pan a pound of lump-sugar, a pound and a quarter of peeled rhubarb, and the peel of one lemon cut as small as possible, until the materials are converted into jam.

Lemon Dumplings.—Mince four ounces of suet, and mix it with the same quantity of moist sugar, half a pound of bread-crumbs, and the juice and peel of a lemon cut small. Put them into tea-cups, and boil them for three-quarters of an hour.

Lemon Cheesecakes.—Simmer together in a saucepan a pound of loaf-sugar, a quarter of a pound of butter, four eggs, the juice of two lemons, and the rind of the lemons cut very small. When the materials have become of the consistence of honey, pour into a jar and preserve for future use.

Lemon and Suet Puddings.—Take some suet and cut it small, currants, sugar, grated lemon-peel, ground ginger, eggs, and bread-crumbs; mix them into a paste, roll them into balls, tie up in a buttered cloth, and boil them for twenty minutes.

HOUSEHOLD FIRE-ARMS.

FEW English dwellings of the middle and upper classes are entirely destitute of fire-arms. These will of course vary in form of construction and costliness with the means at the disposal of their owner and the purposes for which they were originally intended. It is not our intention here to enter on the early history of weapons of war or the chase, or to deal at length with the almost endless number of mechanical and other improvements which are continually being made in the construction of both military and sporting arms. We prefer rather to deal generally with the guns, rifles, and pistols in

manufactured in this country (except for exportation), they can be made efficient use of, either in their original condition, or in the form of what are called altered or plugged guns. The action of the flint-ignition system, as most of our readers will be aware, is dependent on the explosion of a small charge of fine powder known as the priming, by numerous intensely-heated sparks given out when a sharp-edged flake of flint, held between the jaws of the cock or striker, is caused to impinge on and force back the steel face or hammer which acts as a spring-cover to the priming-pan. The hollow of this pan, being in a direct line with a small orifice known as the touchhole, leading directly through the substance of the barrel to its interior

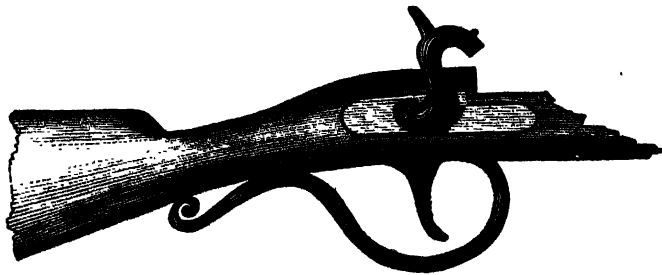


Fig. 9.



Fig. 4.



Fig. 8.



Fig. 6.



Fig. 5.

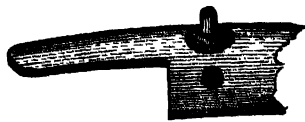


Fig. 3.



Fig. 1.

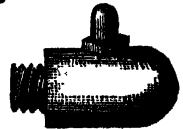


Fig. 2.

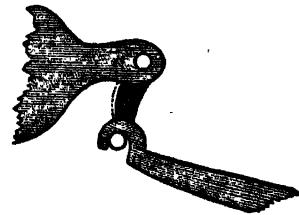


Fig. 7.

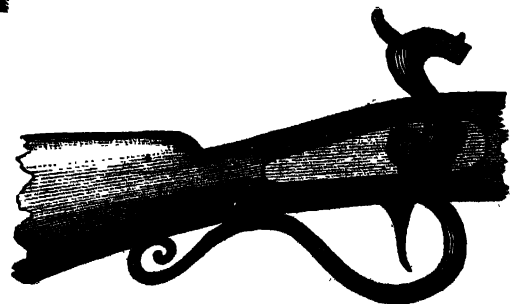


Fig. 10.

most general use, and to give such hints and directions relative to their peculiarities, qualities, and mode of management, as may prove of service to those whose experience in such matters has been limited.

The term "household fire-arms" we wish to be well understood as applying to the weapons that are kept for house protection, ordinary British field sports, the obtaining of specimens of natural history, and the volunteer service. Before proceeding to a consideration of any particular class or description of fire-arm, it may be useful to examine the character and mode of construction of such arms as may be justly considered old-fashioned, but still thoroughly efficient and powerful. First in this class stands the firmly-built flint-and-steel weapon of our grandfathers, a production which may be viewed in the light of the guide by which the modern gunmaker has so successfully profited. And those of our readers who are fortunate enough to possess one of the late "Joseph Manton's" masterpieces will not fail to be struck with the exquisite finish and completeness of detail displayed in its elaboration; and although flint-lock guns are no longer

or chamber, in which the main charge of gunpowder is deposited, gives a resting-place for what may be called a taper-ended powder train, which, when fired by the sparks, darts its flame inwards through the vent and so fires the gun, whilst a puff or cloud of white smoke ascends from the pan. Highly-finished flint guns usually have their touchholes formed by large orifices, which are drilled at right angles through the substance of the metal composing the breech, and then fitted with either gold or platinum screw-plugs or bushes with minute, evenly-drilled orifices passing through their centres. Barrels thus fitted are very easily converted to the percussion principle, by having a soft steel plug substituted for the gold or platinum bush. This steel plug or cylinder is, however, only perforated throughout part of its length, and is furnished, at right angles with the hollow tube within it, with a female screw nipple-seat or socket (as shown in the above illustrations, Figs. 1 and 2).

The greater number of the muskets used by the Russian soldiers in the Crimea were converted guns, but were altered by having their touchholes securely filled by an

iron spike, and then having the nipple screwed into the barrel from above downwards (Fig. 3.) This plan, although well adapted for application to single barrels of large size, would not answer with double barrels, on account of the inward twist which has to be communicated to the hammers in order to make them strike evenly on the nipple-head. As the internal mechanism of flint and percussion locks is precisely the same, the outside alone requires alteration. The pan or hammer spring is removed; the cock replaced by a percussion hammer, and the pan filed off flush with the face of the lock-plate. Its hollow, when rounded and filed out, serves for the nipple-plug or cylinder (Fig. 2) to rest in when the gun is put together for use. Three forms of breech are commonly met with. The tailed breech, shown in Fig. 4, is often made use of in old-fashioned fowling-pieces and modern military arms.

The plug-breech (Fig. 5) also commonly found in old sporting guns, and the so-called patent breech (Fig. 6), the best form ever invented, and now fitted to every well-made muzzle loader. The tailed breech forms a portion of the barrel itself, and is a mere prolongation of it. The narrow tapering strap or peak projecting backwards is fitted into the substance of the stock, and screwed fast from above downwards. The plug-breech is, as its name bespeaks, a mere plug, which, being furnished with a male screw and hook for locking into the socket provided for its reception in the stock, is simply screwed up into the cavity of the barrel. The patent breech is infinitely superior in neatness, efficiency, and safety to either of those just described. A reference to the annexed sectional drawing used in representing it, will serve to show that a perfect chamber for the reception of the gunpowder is hollowed out from its centre, and that a strong screw is provided, by the aid of which it is adapted to the rear end of the barrel; the upper margin of this hollow screw being so made as to shoulder accurately against the lower rim of the female screw in which it fits. It will also be observed that the lower end of the chamber is slightly tapered, and turned in a curved direction outwards, constituting what is called the cross-chamber; into this, at the point marked with an X, the base of the nipple is screwed in such a way that the stream of fire, sent downwards by the explosion of the percussion-cap, may strike directly on the powder in the end of the cross-chamber, which closely resembles, as will be seen, the plug (Fig. 2) used in the conversion of the flint to the percussion principle. Before quitting the subject of old-fashioned fire-arms, it will perhaps be well to point out a most important improvement which was some time since effected in the construction of gun-locks; and, strange as it may seem, it may be viewed in the light of being almost the only material change effected in the art of modern gun-lock making.

This improvement consists in the introduction of a peculiarly formed T-ended swivel as a medium, by the aid of which the mainspring is caused to be instrumental in acting on the tumbler and bringing down the striker or hammer on the nipple. In order to adapt the end of the mainspring to the T-end of the swivel, it is split into a sort of claw, as shown at Fig. 7. Fig. 8 shows the old form of action, in which the spring, being simply hooked at the point, caught in the curved or hollowed end of the tumbler, and so caused it to revolve on being released by the action of the trigger on the sear. The introduction of the swivel, or bridle, as it is not unfrequently called, brought about a great saving of friction, and insured greater freedom of motion where that quality is most required. No good lock is without this arrangement, which is common to both front and back action locks. In the construction of the former, the mainspring is so arranged as to act in a line of direction from before, backwards, or from the muzzle of the gun towards the

stock, whilst the latter is so adjusted as to operate in a line from stock to muzzle. Much diversity of opinion exists as to the merits of these two forms of lock construction, the advocates of the so-called *long lock* claiming for it security from wet, neatness of form, and economy of space; whilst the champions of the front-action principle found their claims on superiority of construction, solidity of form and general compactness of arrangement, coupled with non-liability to weakening of the hand-grip of the gun-stock, by the insertion of the lock-plate and works at the very point at which the stock is most reduced in substance, and consequently the most liable to breakage. As it will be requisite for us to refer again to the two established but rival systems of lock construction, it will be perhaps well to refer the reader to the two diagrams marked respectively Figs. 9 and 10.

Fig. 9 represents the ordinary front-action form of percussion-lock, adapted for use with either breech or muzzle-loading double or single-barrelled guns, carbines, or pistols, and Fig. 10 shows the manner in which the reversed spring or back-action arrangement is fitted. So long as muzzle-loading small arms of any class, size, or description (except needle-guns) are used, the front-action form of lock will be found particularly the best; but as we proceed with our subject, we shall point out that the introduction of the breech-loading system has brought about certain conditions of constructive form and detail of mechanical arrangement, which render the long or back-action lock particularly suitable for use in association with them. Gun-locks, like the works of watches, vary in quality in an extraordinary degree; and no one but an expert can distinguish the various grades of finish or excellence arrived at by particular classes of producers. Great numbers of thoroughly good and valuable locks are to be met with which bear no maker's name. A still greater number of average productions have to be taken on trust; the gunmaker's respectability being the guarantee, and a very safe one it almost invariably is. Some of the eminent firms whose well-known names are stamped on the lock-plate, confine themselves to supplying the locks to the gunmaker. And here it may be well to point out the importance which is to be attached to the careful and accurate adaptation of the edges of the lock-plates, and the works they cover, to the woodwork of the stock and under surfaces of the barrels, as on this nicety of adaptation will depend the damp-resisting qualities of the unions between timber and metal, and the consequent liability to, or freedom from, the rust which is so detrimental to lock-springs and gear.

Great care should also be observed in the fitting-in of the triggers, as, should they be loosely pinned or socketed, rain or snow-water will enter freely, and so penetrate to the seat of the lock. If, on the other hand, too tight a joint is made, stiffness and slowness of action is the result, and loss of simultaneous movement of finger and sear follows, thus naturally causing bad shooting. Intending purchasers of guns should look well to these matters of detail in the lock-adjustment. It should also be seen that the cavity at the striking-point of the hammer is truly surfaced at the spot which inflicts the blow on the cap, or source of ignition. The bell, or hammer cavity, should be deep enough to prevent the scattering of cap fragments—which are extremely dangerous to the eyes—and so hollowed as to strike the nipple-point as near its centre as possible.

Should it incline to one side in delivering its blow or on being allowed to press on the cap, a broken nipple is very apt to be the result. In order to test the quality of a lock, raise the hammer by the thumb, keeping the fingers off the trigger until the half-cock and full-cock positions have been reached. By keeping the thumb on the dolphin or thumb-grip, and drawing the trigger gently, the hammer can be smoothly and evenly lowered, raised

again, and so on, thus causing the lock to "talk," as it is called, and manifest its good qualities by giving forth a clear, sharp, ringing click, as each notch in the tumbler is caught. Every movement should be perfectly smooth, and free from the slightest grit or catch. Never risk the breakage of a lock by snapping the hammer on an undefended or uncapped nipple. Well-fitted locks will rarely require removal from the stock for cleaning purposes, unless the gun has been made unusually wet from either rain or a plunge in the water. It may then be necessary to take the works asunder, in order that every portion shall be freed from moisture. The performance of this operation requires some little care and regard to mechanical rule, as will the replacing of the various springs, screws, &c. Full directions for safely carrying out both these operations will be given in our next paper, together with a consideration of gun-barrels, methods of loading, relative charges, &c.

PERFUMERY.—I.

Pomades.—Pomade for the hair usually consists of two parts of lard and one of beef suet, melted together, and perfumed with some essential oil. When this pomade is intended for hot climates, it is generally prepared with equal parts of these substances. If it is desired for the pomade to keep fresh for a considerable time, great care should be taken to remove all membrane, and other impurities from the lard and beef fat employed. The easiest and simplest way of doing this, is to melt the fat with a gentle heat, and strain it over a pan of cold spring water, in which some alum and salt have been previously dissolved. This process should be repeated several times, by which means all the impurities will be removed from the fat. It is then washed repeatedly in cold water, and then the fat is to be collected, melted, and preserved for use.

Not much scent is added to an ordinary pomatum, about three or four drachms to two pounds being the usual proportion for a cheap article.

A good preparation of its kind consists of one pound and a half of plain pomatum melted at a gentle heat, and perfumed with one drachm and a half of bergamot, one drachm of oil of lemons, half that quantity of the oils of cassie or rosemary, and twenty drops of oil of cloves. The essential oils are first mixed together, and then added to the melted fat.

Sometimes beef marrow is employed for pomades. What is known as Cazenove's pomade consists chiefly of beef marrow, four ounces; powdered cinnamon, half an ounce, melted together, and the clear portion decanted. In some cases, the beef marrow is used alone, and is perfumed with oil of cassie, or of origanum and bergamot.

Palm oil is occasionally added to pomades, as in the *pomade de casse*. This is prepared with one pound of plain pomade, and half an ounce of palm oil, melted together. The fragrant perfume which it possesses is owing to one drachm each of the essential oils of cassie and jasmine, twenty drops of the oil of neroli, fifteen drops of the oil of verbena (lemon grass), and five of otto of roses.

Sometimes the juice of lily bulbs enters into the composition of a pomade, as in that called *pomade d'Hebe*. It consists of white wax, one drachm, and two ounces of the purest honey, the same quantity of the juice of lily bulbs, melted together, mixed at a gentle heat, and perfumed with two drops of the otto of roses. This pomade is chiefly used to clear the complexion, and as a cooling application.

The preparation known as *pomade brillante*, used to render hair so stiff as to retain its form in any position in which it may be arranged, is composed of the oil of almonds, three ounces; white wax, three-quarters of an ounce; and tincture of mastic, one ounce. The wax is

first melted at as gentle a heat as possible, then the oil is added to it. When they are both thoroughly united, the tincture is stirred in, and half a drachm of bergamot added as a perfume.

What is known as castor-oil pomade is prepared with white wax, a quarter of a pound, and one pound of castor oil melted together. The perfume is given by three drachms of bergamot and ten drops of essence of ambergris.

The crystallised castor-oil pomade consists of one pound of castor oil and three ounces of spermaceti, melted together, and perfumed with three drachms of oil of bergamot, and half a drachm of the oil of lavender, and the same quantity of lemon grass and rosemary. The crystalline appearance is produced by allowing the pomade to cool very slowly, and is due to the spermaceti it contains. If preferred, this pomade may be prepared with olive oil instead of castor oil.

Scents.—When a scent is prepared from only one perfume it is called *extrait* or extract, *esprit* or essence. But when the scent is a compound one, *i.e.*, composed of so many perfumes that the odour of any single flower cannot be distinguished, it is known as a *bouquet* or nosegay. We will now proceed to consider the composition of some of these compound preparations. A very superior essence of moss rose may be thus manufactured:—Take spirituous extract of French rose pomatum, forty parts; extract of rose triple, twenty parts; extract of orange flowers, the same quantity; extract of ambergris, ten parts; extract of musk, four parts; mix them together in a stoppered bottle, and let them remain at rest for a fortnight. This is done to allow the extracts to combine more perfectly with each other. If at the end of that time the essence is not perfectly clear, it may be filtered. The essence of white rose is prepared in a different manner. Take forty parts of each of the following essences: *esprit de rose triple*, *esprit de rose* from pomatum, and *esprit de violette*; twenty parts of extract of jasmine, and ten of extract of patchouli, and mix them. The perfume of the honey-suckle is thus imitated: spirituous extract of rose pomatum, ten ounces; the same quantity of extract of violets and extract of tuberose; extract of vanilla and extract of tolu, two ounces and a half each; essential oil or otto of neroli, five drops; and oil of bitter almonds, two drops and a half mixed together.

An essence possessing the perfume of the white lilac may be prepared by mixing five ounces of the spirituous extract of tuberose; pomade, five ounces; extract of civet, one drachm; extract of orange flowers, ten drachms; oil of bitter almonds, one drop.

The use of the civet, added to this preparation, is only to give permanence to the scent, and prevent it from becoming faint or sickly, soon after being used. A perfume resembling the lily of the valley, and which is said to be much admired, is thus prepared:—Take of extract of tuberose, ten ounces; extract of vanilla, three ounces; extract of orange flowers, two ounces; extract of rose, five ounces; extract of cassie, five ounces; oil of bitter almonds, three drops, and mix. This preparation should be kept for a month at least before being used.

Imitation essence of hovenia consists of the following ingredients:—Otto of lemons, two ounces; otto of roses, half a drachm; otto of cloves, fifteen drops; otto of neroli, five drops, dissolved in one pint of rectified spirit of wine. Extract of heliotrope may be prepared by mixing extract of vanilla, ten ounces; extract of French rose pomatum, five ounces; the extract of orange flowers, two ounces; extract of ambergris, one ounce; essential oil of almonds, five drops. The extract of verveine (vervain) consists of extract of tuberose, and extract of orange flowers, seven ounces each; *esprit de rose*, half a pint; otto of lemons, two ounces; otto of orange-peel, one ounce; otto of lemon grass, two drachms and a half; and otto of citron zest, one drachm, dissolved in one pint of rectified spirit of wine.

CHILDREN'S DRESS.—XX.

CLOTHING FOR A BOY OF TEN YEARS (*continued from p. 62*).

A Boy's Suit in Brown Tweed.—Fig. 1 is a design for a boy's knickerbockers, and shows how the pocket is put in. Each leg is cut in two pieces, back and front. Fig. 2 is the back, Fig. 4 the front. They are lined. Also line Fig. 4, left side, with twill at the dotted line A to B. Make a false piece the same shape, line it, fit it with a row of button-holes, and stitch it inside to the dotted line, but first tack the lining to the two pieces of the drawers. Stitch Fig. 4 and Fig. 2 together, not stitching the lining, from

and turn it over. Stitch it a second time on the right side, a little way within the edge, as shown by the line in Fig. 3. The lining should be of twill, the same colour, and be cut just to meet and turn over the facing. Tack it, and place over the facing; then turn in a little and hem it down. Cut the back of dark jean. Stitch the back to the fronts, lining and all. Line the backs, and hem the lining over the fronts. The straps are let in between the side seams. Fig. 5 shows how the backs are cut and also the straps. The pockets should be put into the fronts before the lining. Cut a slit for the pocket. Join the under edge of the pocket to the under edge of the hole (see Fig. 3); just tack them together on the right

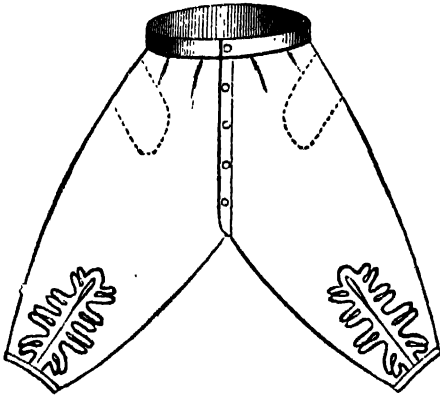


Fig. 1.

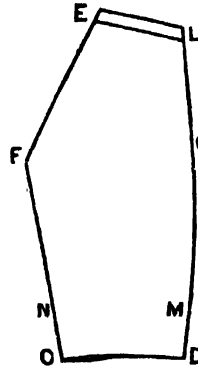


Fig. 2.

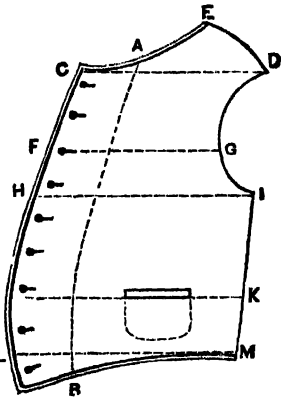


Fig. 3.

C to D. Turn the lining one side over another, and hem it. Turn in the edges at the placket-hole, D to E, each side, and run the lining neatly. Line the right legs, stitch the dotted line, A to B, and put on buttons. Join the back and front of the leg in the way already described. Stitch the two legs together from E to F (Fig. 2), turning over and hemming the line as above described after the stitching is done. Also stitch up the front as far as G (Fig. 4). The pocket should be put in before the lining is run to the twill in Fig. 4. Fig. 1 shows the shape and disposition of the pocket, which is cut out of twill. To set the drawers in the band there are two pleats, at A and I in Fig. 4 and two similar ones in Fig. 2. Make the band of the material of the knickerbockers, and line with twill. Hem round the knees half an inch wide, and insert an elastic. The trimming, half-inch-wide twilled ribbon or braid, is put on before the knees are hemmed. There are three button-holes behind and five in front.

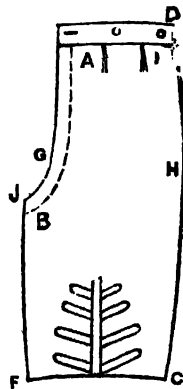


Fig. 4.

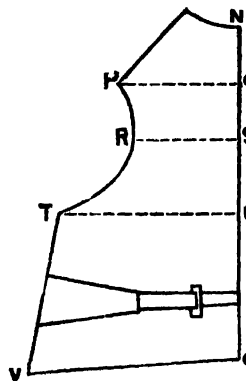


Fig. 5.

The measurement for a boy from ten to twelve years old is as follows:—Fig. 4, A to D, six and a half inches; G to H, nine and a half inches; J to K, eleven and a half inches; C to F, the knee, eleven and a half inches; J to K, eleven and a half. Fig. 2, E to L, nine inches; F to C, eleven and a half inches; N to M, ten and a half inches; entire length of the drawers, twenty-four and a half inches; F to O, fourteen and a half inches; F to E, fourteen inches. This is without allowing for turnings.

The Waistcoat.—Cut this by Fig. 3, for the fronts, of the material of the suit. Cut a piece of the same material, and face each front by the dotted line. Stitch the edges of the front and the facing together on the wrong side,

side, and afterwards lay a piece of the material over, with both edges turned in, and double-stitch it. The upper edge, Q, is stitched to the upper edge of the whole waistcoat on the wrong side. The false piece put on covers the entire aperture of the pocket.

The waistcoat measures (Fig. 3), A to B, thirteen and a half inches; C to D, six and a quarter inches; E to D, the shoulder, three and a quarter inches; F to G, across the breast, five inches; H to I, under the arm, eight inches; J to K, across the pocket, eight and a quarter inches; L to M, across the waist, eight and a quarter inches; I to M, under the arm, six and a half inches. Fig. 5, the back: the length, from N to O, fourteen inches; P, the shoulder, three and a quarter inches; across the back of the shoulders, P to Q, five inches; the neck, N, three and a quarter inches; across the blade-bones, R to S, five inches; under the arms, T to U, seven and a half inches; the waist, V to O, fourteen inches; the side seam, T to V, six and a half inches.

The Coat is made of the same material as the knickerbockers and waistcoat, which we have supposed to be of brown tweed.

Fig. 6 is the front of the coat. Cut two fronts, and face them by a piece cut by the dotted line from A to B, and put on as the waistcoat piece was put on. Make a pocket and insert it in a similar manner to the waistcoat pocket. Cut the lining of dark jean so as just to meet the tweed facing and lap over it. Tack it in place, turn in the edge, and hem it down to the facing; or stitch it neatly, but do not take the stitches through. Stitch the fronts all round very neatly close to the edge, and

again stitch them about half an inch in. Turn in the edge of the neck to meet the lining, and include this in the stitching. Fig. 8 is the back. Cut this also of tweed. There is no join in the middle of the back, but Fig. 8 only shows half the back. The material is folded down the centre of the back, to be cut. There are two side pieces cut and stitched on. Stitch the side seams and shoulders to the fronts. Then cut the lining, tack it in place. Turn it in, top and bottom, and also the edge of the back. Tack it. Lay the edge of the lining over the front lining, and hem it down. Stitch the edges of the back to match the front. Cut the sleeves of tweed by Fig. 7. Stitch each sleeve together, and stitch it into the coat. Cut a lining for each. Stitch the lining together. Run the cuff of the lining to the cuff of the coat on the wrong side. Draw the lining in, tack it, and hem it over the join of the sleeve to the coat. Double-stitch the cuff round, like the edge of the coat.

The measurements are—the front, Fig. 6, A to B, seventeen and a half inches; C to E, the throat, four and a half inches; E to F, the shoulder, five and a half inches; G to F, across the chest, eight inches; H to I, across the chest under the arm, eight and a half inches; J to K, across the pocket, eight and a half inches; L to M, the waist, nine inches; length of the side seam.

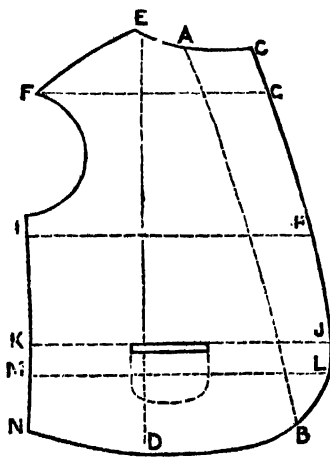


Fig. 6.



Fig. 9.

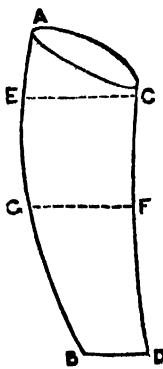


Fig. 7.

HOUSEHOLD AMUSEMENTS.—XXXIV.

PENCIL-AND-PAPER GAMES.

Word-making.—This is a game which is very amusing when it is played with spirit. Each player must be provided with a pencil and a sheet of paper, or with a slate and pencil. One player must be appointed leader, the others divide into two sides; suppose seven persons are going to play, one will be the leader, and there will be three on each side opposed to the other. The leader first gives out a word, which should be a long one, with as much variety of letters as possible, and especially of vowels; this word each player writes on the top of his paper or slate; the leader next looks at his watch, and fixes the time to be allowed for writing; it may be three, four, or five minutes. All begin together, and make as many words as they can from the transposition of the letters in the original word given, each of their words beginning with the *first letter* of the original one; no letter must be used twice over in the same word. When the leader declares that the time is up, all stop writing, and the players, first one side, then the other, read their lists of words, pick out those which they have, and which their opponents have not, and note down the number. The second letter of the original word

Fig. 10.

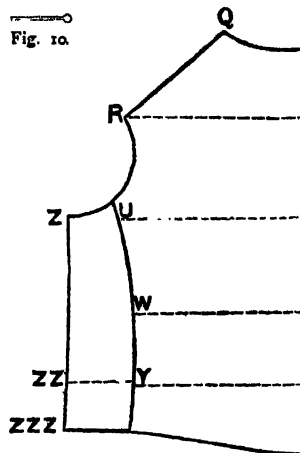


Fig. 8.

I to N, nine and a half inches; width of the mouth of the pocket, four and a half inches.

The back, Fig. 8: O to P, the length, nineteen and a half inches; O to Q, the neck, two inches; Q to R, the shoulder, five and a half inches; S to R, across the back, six inches; T to U, under the arm, five and three-quarter inches; V to W, the waist, three and a quarter inches; X to Y, below the waist, four and a half inches. The side-piece of the back—U to Z, under the arm, two inches; Y to Z Z, three inches; P to Z Z Z, nine and a half inches.

The sleeve, Fig. 7: the length, A to B, seventeen and three-quarter inches; C to D, thirteen and a quarter inches. The width, C to E, six and a half; F to G, six and a quarter; D to B, four and a half inches. The sleeve is cut in two pieces, stitched together, the rounded piece at the top, and the top seam placed an inch behind the shoulder seam. The coat is fastened by one button at the throat; the waistcoat by several.

Fig. 10 shows how tailors' button-holes are cut. First a little round hole as if made by a stiletto, then a long slit. First sew over the hole, then closely button-stitch it with tailors' twist. The little round hole is to hold the shank of the button. In making boys' clothes, a hot box-iron should be at hand, and every seam ironed down as it is made. Fig. 9 is the coat pocket.

is then taken, and the same proceedings are repeated, till each letter of the word has been used for an initial, the same time being allowed for each, and the opposing parties carefully noting their advantages each time. The last proceeding is to add them up, and the side which has the most is of course the winner.

We will give a short example to prevent any misunderstanding of the process. Suppose the word given to be *material*, we begin with the letter *m*.

First Side.

1. Mat.
- Meat.
2. Mile.
- Mire.
3. Malt.
4. Mart.
- Meal.
5. Mitre.
- Mite.
6. Mare.
7. Male.

Second Side.

- Mire.
- Meal.
- Mite.
1. *Mater*
- Meat.
2. Met.
3. Marl.
4. Metal.
5. Mate.
6. Marial.

Here it will be seen that the first side has seven words which are not to be found on the second side, and that the second side has six words which are not on the first side, the gain on this letter will therefore be one to the first side. We need not go through all the letters. The nature of the game will be evident from this specimen.

HOUSEHOLD LAW.—XXI.

SERVING ON JURIES.

A JURY consists of a certain number of persons, termed jurors, who are sworn to inquire into and try some matter of fact, and to declare the truth upon such evidence as shall be laid before them. The jury are sworn judges upon all evidence in any matter of fact, and are bound on oath to decide (*i.e.*, give their verdict) according to the evidence laid before them. A jury at civil causes is either a common or a special jury; in criminal causes, a grand or petty jury. The law relating to the qualifications, summoning, and attendance of juries is now regulated by the Juries Act (the 33 & 34 Vict., c. 77). A coroner's jury and grand jury may consist of any number more than eleven; generally they consist of twenty-three. Juries in all criminal and civil trials in the superior courts, and in writs of inquiry, consist of twelve men—neither more nor less. Juries in county courts consist of five (9 & 10 Vict., c. 95, sec. 73). Unanimity is not required from a grand jury or a coroner's jury. The verdict of twelve men—which is, in fact, the jury of a majority—is sufficient.

First, then, let us look at the qualifications requisite for a common jurymen. Every man is liable to serve on a jury who is between the ages of twenty-one and sixty, residing in any county in England, who shall have in his own name, or in trust for him within the same county, £10 by the year above reprises, in lands or tenements, whether of freehold, copyhold, or customary tenure, or of ancient demesne, or in rents issuing out of any such lands or tenements, or in such lands, tenements, and rents, taken together in fee simple, fee tail, or for life of himself or some other person; or who shall have within the same county £20 above reprises, in lands or tenements, held by the lease for an absolute term of twenty-one years, or more, or for any term of years determinable on any life or lives; or who, being a householder, shall be rated or assessed to the poor-rate, in Middlesex on a value not less than £30, or in any other county on a value not less than £20. Persons possessing any of the above qualifications can be summoned from their homes, their employment, or their pleasure, at any moment, to "try and true deliverance make" in all issues in any of the superior courts at Westminster, both civil and criminal; in the counties palatine, in all courts of assize, *nisi prius*, oyer and terminer, and gaol delivery; such issues being respectively liable in the county in which every man so qualified to serve respectively resides. Any such person, moreover, is liable to serve on grand juries at quarter sessions, and on petty juries at those meetings as well, held in the county in which he resides, and on coroners' juries.

In order that persons liable to serve on juries may have notification of the fact, jury lists are made out every year, and published in September in the following manner. The clerk of the peace in July in each year issues his warrant to the high constable of the county, commanding him to issue his precept to the churchwardens and overseers of the poor of the several parishes within his constableness, requiring them to return a list of all men residing within their parishes qualified and liable to serve on juries. This being done, a copy of the list is affixed to the doors of the churches in the various parishes on the first three Sundays in September. A special petty sessions is afterwards held, at which these lists are produced before the justices, who strike out the names of those persons who are not qualified, and insert those who are. The lists are then copied into the jurors' book by the clerk of the peace, and the book delivered by him to the sheriff, to be used from the 1st of January for one year.

Many persons, though possessing the qualifications stated above, are nevertheless exempt, by reason of their belonging to some trade or profession which unfits

them for serving. Lawyers, clergymen, doctors, officers of the army, navy, militia, and yeomanry, when on full pay; Government officers, magistrates, members of a municipal corporation (these two last, however, are liable unless summoned to serve on a jury in the county over which they have jurisdiction), policemen, pilots, and others of a like profession or calling. Aliens, however, who have been domiciled in England or Wales for ten years or upwards, if in other respects duly qualified, are liable now, by the new Jury Act, to serve on juries in the same manner as natural born subjects.

The qualification for a special jurymen is somewhat higher, which, of course, from the nature of the case, would only appear to be reasonable. Any man is liable to serve on a special jury in any county whose name is in the jurors' book for any such county in England or Wales, or for the county or the city of London, and who is legally entitled to be called an esquire; or is a person of higher degree; or is a banker or merchant; or occupies a private dwelling-house rated or assessed to the poor-rate, or to the inhabited house duty, on a value of not less than £100, in a town containing, according to the census next preceding the preparation of the jury list, a population of 20,000 and upwards; or rated and assessed to the poor-rate or inhabited house duty on value of not less than £50 elsewhere; or who occupies premises other than a farm, rated or assessed as aforesaid on a value of not less than £100, or a farm rated or assessed as aforesaid on a value not less than £300.

Persons qualified to act as special jurors are specified in the jury lists, which are made out as we have seen above. The overseers must designate in their list the nature of the qualification, the occupation, and the amount of rating or assessment of every person whom they specify as qualified to serve as special jurymen. And their names are not to be removed from the jurors' book by reason of their possessing these qualifications. All the persons exempted from serving on common juries have the same privilege with regard to special juries.

Grand juries are those which hear the evidence in a criminal case at the assizes and quarter sessions before it comes to be tried in open court; and if the grand jury are of opinion that the offence charged in the indictment before them has been sufficiently proved, and therefore a fit case to go to the common jury, the clerk will endorse on the indictment, "*True Bill*;" but if they should be of a contrary opinion, and think the offence has not been sufficiently proved, the words "*No True Bill*" are in that case endorsed on the indictment. On the finding of the grand jury, the indictment is carried by the foreman into court, and delivered to the clerk of arraigns. Grand jurors at quarter sessions must possess the same qualifications as common jurymen; but at the assizes, persons are eligible to serve on the grand jury without possessing any qualifications by estate. They must, however, be of the "King's liege people, returned by sheriffs or bailiffs of franchises, and of whom none shall be outlawed, or fled to sanctuary for treason or felony, otherwise the indictment shall be void."

So much for the qualifications of the jurymen of the different classes. Now let us turn to the manner in which they are summoned.

In London and Middlesex a sufficient number of common jurors are summoned to attend, by a six days' notice to that effect, by the sheriffs, who act under a precept from one of the judges, and who, at the time of issuing such precept, give directions concerning the time and place for which such persons shall be summoned. At the assizes in the country the judge presiding in the civil court directs that a sufficient number of jurors be taken by ballot from the common jury panel (who are summoned on a six days' notice, as in London and Middlesex) who are to act as the jurors during that day to try civil

cases, and shall not during that day be called on to try criminal cases, unless needed and required to do so by the judge presiding in the criminal court. The residue of the panel are to be the jurors to try criminal cases during that day, and are not to be called on to try civil cases, unless needed and required to do so by the judge in the civil court. The jurors thus taken by ballot and the others who actually sit on the trial of any civil cases, are considered as the jurors in attendance for that day.

Special juries are summoned in pursuance of a precept under the hand of any one of the judges of the superior courts; and at the assizes in the country, by virtue of one issued by the judge of assize. In London and Middlesex a sufficient number of special jurymen—not less than thirty for each court—are summoned to try the special jury cases to be tried at the sittings for which they are called. Upon the trial the special jury is balloted for in the same manner as for a common jury. If any man summoned on a jury shall not attend or answer to his name, or if he be present, but do not appear, or wilfully withdraw himself, the Court shall fine him as it thinks fit.

COOKERY.—LXXIV.

FRENCH SAUCES, ETC. (continued from p. 55).

Remolade Vert (Green Remolade).—Take a handful of chervil, and half that quantity of chives, pimpernel, and tarragon. Blanch them, and press them in a linen cloth to remove all moisture. Then bruise them in a mortar, and afterwards add some salt, pepper, and a glassful of mustard. Continue to beat them all into a mass, and add half a glassful of olive oil, and mix it well with the other ingredients. Then add the yolks of some raw eggs and a few tablespoonfuls of vinegar, and pass the whole through a sieve or cullender. If desired, some *vert d'épinards* may be added, to give the sauce a greener colour.

Sauce Tomate à l'Italienne (Tomato Sauce in the Italian Manner).—Put into a stewpan a cupful of stock broth, some onions, about a dozen tomatoes, and some thyme; add also some butter, salt, pepper, and turmeric. Place the vessel on the fire, and continually stir the contents to prevent their adhering to the sides of the vessel, which they are very apt to do. When the contents have boiled long enough to become tolerably thick, stir them through a sieve.

Sauce Espagnole (Spanish Sauce).—Take five ladlefuls of Spanish broth, and three of jelly soup, and then mix them together with a handful of mushrooms. If this sauce should be desired of a dark colour, it may be coloured with *blonde de veau*. The sauce must be boiled over a fire not too fierce, and when ready, should be strained before use. This sauce is sometimes prepared with the addition of white wine. During the time this sauce remains on the fire, it must be continually stirred to prevent its being injured by the heat.

Sauce à la Portugaise (Portuguese Sauce).—Cook, over a slow fire, the raw yolks of two eggs, in a tablespoonful of lemon-juice, and four ounces of the best fresh butter. The ingredients are then to be seasoned with the proper quantity of salt and pepper, care being taken, while the vessel is on the fire, that the contents are frequently stirred to mix the butter thoroughly with the eggs. If necessary, a little water may be added to thin this sauce.

Sauce Allemande (German Sauce).—Beat up the yolks of eggs in *velouté travaillé*; when they are well mixed, add a piece of fresh butter half the size of an egg. Stir it up well in the sauce, strain it, and afterwards season the sauce with salt and pepper. This sauce may be prepared in a cheaper manner by omitting the *velouté*, and using, instead of it, some veal cut up into small square pieces like dice. This is cooked in a pan with some butter,

together with some pieces of carrot, a few small onions, and some cloves. When sufficiently done, add a tablespoonful of flour, and mix it well with the other ingredients. When the contents have become brown, pour in some stock broth, and stir the sauce continually until it boils.

Sauce à la Grimod (Grimod's Sauce).—This sauce is prepared in the same manner as Portuguese sauce. The same ingredients are also used, with the addition of some nutmeg, cayenne pepper, and half a teaspoonful of turmeric to the other materials.

Sauce au Beurre d'Anchois (Sauce of Anchovy Butter).—Add to some hot *sauce espagnole* a piece of anchovy butter half the size of an egg, and also some lemon-juice to conceal the salt taste produced by the butter. The materials are then to be well mixed together by continual stirring. If preferred, this sauce may be prepared with brown sauce in place of Spanish.

Sauce Italienne (Italian Sauce).—Simmer in half a bottle of wine the following ingredients at a gentle heat, until they become of the proper consistence for a sauce:—One tablespoonful of parsley chopped up fine, and half that quantity of mushrooms and shallots also chopped up, and a piece of butter as large as an egg. These materials are put in a pan with two tablespoonfuls of *velouté*, and one of jelly soup, and simmered over a fire not too hot, until the contents of the stewpan becomes as thick as a clear stock-broth.

Sauce Romaine (Roman Sauce).—Chop up some veal and ham into small squares the size of dice, remembering to employ twice as much veal as ham. Take also two legs of a fowl, four onions, the same quantity of carrots, two or three cloves, and a little basil. Put them all into a stewpan, over a slow fire, with some butter, and a small quantity of salt. When the materials have begun to change colour, mix in with them the yolks, previously well pounded, of a dozen eggs. Then add, gradually, some good cream, and simmer the whole over a gentle fire, stirring it continually to prevent it from becoming lumpy. When the same has been boiled sufficiently—an hour and a half being the usual time—strain it for use. If it should be found too thick, thin it with milk or cream.

Sauce Hollandaise (Dutch Sauce).—Season a sufficient quantity of *velouté* with salt, and add some tarragon vinegar. Before using, add some butter, the size of half an egg to the warm sauce, and mix them well together. Then beat it up with some *vert d'épinards* to give the sauce the green colour required.

Cornichons (Small Cucumbers preserved in Vinegar).—Select a number of small cucumbers of the same size, and sprinkle over them some powdered salt. Afterwards steep them in cold water, and drain on a cloth. Put the cucumbers in an earthenware jar, with some small onions, tarragon, samphire, cloves, long pepper not dried, and a bruised nutmeg. Then make hot some strong vinegar, and pour it over the cucumbers while boiling, and allow them to remain in the vinegar until the following day. The fluid is then to be poured off, again made hot, and poured over the cucumbers and other vegetables in the jar. This is to be done for three or four days in succession; the mouth of the jar is then to be carefully closed with parchment, and placed in a dry situation.

Culs d'Artichauts (Dried Artichokes).—Take some artichokes gathered in autumn, place them in boiling water for a quarter of an hour to blanch them. Then take them from the water, and allow all the water adhering to them to drain away. Afterwards place the artichokes in an oven (moderately heated) for an hour, remove them, and let them become cold in the air. Repeat this several times, until the artichokes become perfectly dry. They should be preserved in well-closed vessels in a dry place.

CONFECTIONERY DAINTIES.—II.

Devonshire White-pot.—Put some sliced bread in milk, add some flour, and a few raw eggs beaten up. Beat up these materials into a paste, about as thick as batter for pancakes. Then pour it into a deeper earthenware pan, put some slices of butter on the top, tie over the mouth of the pan with brown paper, and bake it. If preferred, the flour may be omitted from Devonshire white-pot, and ground rice employed instead.

Devonshire White-pot may also be prepared in the following manner:—Mix eight raw eggs in a quart of cream, together with a sufficient quantity of sugar and nutmeg. Then lay a number of slices of bread in a dish, and pour the cream over them; mix with them some raisins and butter, and bake them.

Paste for Tarts and Cheesecakes.—Mix together three pounds of flour with half that quantity of powdered loaf-sugar, two pounds of butter, and the whites of two eggs.

Sweetbread Pasties.—Mince some boiled sweetbread with some marrow or veal-suet; mix them with raw eggs, grated bread, milk or cream, nutmeg, and sugar. Now, prepare a paste of butter, flour, eggs, and sugar, make it into small pasties, fill them with the minced meat, and bake or fry them brown.

Rice Tart.—Simmer the rice in milk or cream until cooked, pour it out, and mix with it some raw eggs, salt, pepper, ginger, sugar, nutmeg, cinnamon, and the juice of a lemon. Put them into the tart, close it up, bake it, and when done, sprinkle the surface with crushed lump-sugar.

Rice Cheesecakes.—Simmer two quarts of cream with some mace and cinnamon; then take it off the fire, and put in it half a pound of ground rice, mix them well, and again boil the cream, taking care to stir it continually. Remove the vessel from the fire, and beat up two dozen eggs in it. Again make it boil, continuing to stir it, until it becomes thick like curd, sweeten it, and add half a pound of blanched almonds beaten up with sugar into powder.

Cherry Tart.—Remove the stones from two pounds of cherries, and boil with loaf-sugar into syrup. Then take about four pounds more of cherries, stone them, and put them into the tart with the syrup. When baked, ice the surface with powdered white sugar, and send it to table while hot.

Chocolate Tart.—Mix two spoonfuls of rice-flour in a little milk, add ten raw eggs, beaten up in a quart of cream, and some salt. Simmer the cream, but take care not to curdle it, and then remove it from the fire, and add some powdered chocolate, taking care to mix it thoroughly with the cream. Afterwards cover the inside of a tart-pan with some thin paste, pour the chocolate cream into it and bake it. As soon as the tart is done, cover its surface with powdered loaf-sugar.

Marrow Tart.—Mix well together with a little water, three marrow-bones, winter savory, thyme, sweet marjoram, the yolks of three eggs, four ounces of currants, some grated nutmeg, and a little water. Inclose this in a layer of puff-paste, and fry with lard.

Another Way to make Marrow Tarts.—Take some marrow cut into small squares, a few hard-boiled eggs, pippins, orange-peel, and citron-peel, together with cinnamon, sugar, and salt. Mix them well together with the juice of a lemon, and make into tarts, and bake them at a moderate heat.

Marrow Sausages.—Pour a quart of warm milk over two French rolls and four ounces of coarse biscuits, broken in pieces. When cold, rub them through a cullender, and mix with them half a pound of minced marrow, and three eggs beaten up. Sweeten with a sufficient quantity of sugar, and add a little salt, nutmeg, and two ounces of powdered almonds. Mix the whole well together and put it in sausage-skins, taking care not to fill them too full. Boil them in water for a quarter of an hour, fre-

quently turning them, and place them in a strainer to cool. These sausages may either be fried with butter in a pan, or cooked in an oven.

Marrow Pasties.—Chop up some apples with marrow, and having sweetened them with sugar, make them into a puff-paste, and fry them in butter. When ready, cover them with sugar, and send them to table.

Another Way to make Marrow Pasties.—Take three marrow-bones, with some thyme, winter savory, and sweet marjoram, three raw eggs, four ounces of currants, and a little grated nutmeg. Mix them well together with a little water, inclose them in a layer of puff-paste, and fry with lard or suet.

Another Way to make Sugar Biscuits.—Mix two pounds of flour and the same quantities of powdered sugar and good butter with nutmeg, cloves, and mace. Make them into paste with some milk or cream. Roll out into a thin layer, cut in squares, prick them with holes, and bake them on tin plates.

To Candy Rosemary Flowers.—Steep the flowers in a mucilage prepared by soaking gum tragacanth in water. Then lay these on a sheet of paper, and sprinkle some powdered loaf-sugar over them. Put them in a warm place, frequently sprinkling loaf-sugar over them until they are covered with candy, and preserve them in a dry place.

Lemon Lozenges.—Put a quarter of an ounce of gum tragacanth in a little water. Add to it some lemon-juice, and the peel cut in very thin slices. Stir them frequently for three or four days, until the gum forms a mucilage. Then strain it into a mortar, mix with it a pound of powdered lump-sugar, taking care to add the sugar by small portions at a time, and not to put another portion in it until the previous one has thoroughly mixed with the mucilage. When a white and flexible paste has thus been prepared, roll it into a sheet about as thick as a halfpenny, and cut it into diamonds with a knife or cutter. Arrange the lozenges on a plate, and dry them in a warm oven.

Wormwood Lozenges.—Beat up in a mortar into a paste some loaf-sugar with spirit of wormwood, and a little gum tragacanth softened in water. Roll the paste out into a sheet of the proper thickness, and cut into diamond-shaped pieces, and dry them in an oven.

Black Caps.—Cut about a dozen apples in halves, and arrange them close together in a dish with the cut surface downwards, and squeeze over them the juice of a lemon. Then cut the peel of the lemon into very thin slices, arrange between the apples, and throw some powdered loaf-sugar over them. The apples are then to be put in a quick oven for half an hour, when they will be done.

Beignets de Riz (Rice Fritters).—Cook the rice in milk, sugar, and butter, and flavour it with any spice that may be preferred. When the rice is done, mix with it some eggs beaten up, and pour it into a basin to cool it. Then form it into balls about as large as nuts, steep them in eggs, cover them with bread-crumbs, fry them, and sprinkle them with crushed loaf-sugar.

ODDS AND ENDS.

To Stain any Hard Wood to Resemble Mahogany.—Apply some dilute nitric acid to the surface of the wood, and allow it to dry. Then paint it over with the following solution:—Dissolve half an ounce of dragon's-blood in half a pint of methylated rectified spirits of wine, and add about a drachm and a half of powdered carbonate of soda. Filter the solution through thin calico, and preserve it in a well-stoppered bottle for use. The solution should be applied with a soft brush, and a sufficiently near resemblance to mahogany will be produced.

To Restore Plants Apparently Killed by Frost.—When plants in pots, such as geraniums, &c., are found to be frozen, they should never be placed near the fire, but should at once be plunged in a bucket of cold water, or pumped upon, but the former process is by far to be preferred, as being less likely to break the leaves, which will be rendered extremely brittle by frost. When thawed by the water, they should be placed in a room sufficiently warm to preclude the possibility of their again freezing, but at a distance from fire. Plants that have been frozen often appear to be dead, when such is not really the case, and when their vitality is merely at a low ebb; they may, under such circumstances, be stimulated, and again brought into vigorous health, by moistening them with water in which guano has been dissolved.

To Restore to Silk the Colour that has been Removed by Acids.—Apply to the place a little hartshorn or sal-volatile.

To Remove White Stains on Crape produced by Water or Rain Drops.—Spread the crape on a table, and fix it firmly down by pins or weights, placing beneath it a piece of black silk. Over the white stains, wash with a camel-hair brush common black ink, and with a piece of soft black silk take off any ink that may rest on it.

To Clean Musty Beer Barrels.—When beer barrels have been kept in a damp place, so that they have become musty in the inside, they may be cleaned by rinsing them with a weak solution of chloride of lime, or by a little hydrochloric acid (spirits of salt) mixed with water. After these substances are used, the vessels must be well washed out with plenty of clean water.

To Clean Plate.—The best preparation for cleansing plate and renewing its polish is prepared chalk and hartshorn mixed together. Having washed the plate with hot water, rub it over with the above mixture; then rub it off with leather, and with another leather polish the silver. This should be done twice a week, but on other days it will be sufficient to rub the plate with leather after washing. A brush may be used for chased work, but it is liable to scratch the smooth surfaces. Plate cleaned with whiting and water is apt to bear a poor, pewtery, or whitish polish. Where the smell of turpentine is not objectionable, a mixture of prepared chalk and spirits of turpentine is better than the above. Great care should be taken so to rub off the mixture that the plate shall not retain the slightest smell of turpentine, which is useful in removing every particle of greasiness from the plate, which mere washing will not do.

To Ascertain whether Butter is Adulterated.—When butter is mixed with tallow, it may be usually detected by melting a little of the butter in a spoon, and smelling it, when the smell of the tallow may be at once perceived. Another way to learn whether this substance has been added is to melt a small piece of butter at a heat not exceeding that of boiling water, and pour it into a wine-glass. Then immediately pour over it two fluid drachms of commercial nitric acid (aqua fortis), and shake them slightly. If the butter employed was pure, it will rise to the surface, and not become opaque for some minutes; but if it contains much tallow, it will quickly become a more or less opaque white mass, the nature of the change, and the time required, depending on the amount of fat present in the adulterated article. Sometimes butter is adulterated with horse-bone oil. In this case, the butter is to be shaken up with hot water, until melted, and allowed to collect upon the surface. Remove five drops of this, and place them on a watch-glass, and immediately add ten drops of strong sulphuric acid. If the butter has been adulterated with horse-bone oil, a deeper colour will be produced than if the butter did not contain that substance.

To Prepare Black Ink from Elderberries.—Put a

quantity of elderberries into an earthenware pan, bruise them, and let them ferment for three days in a warm temperature. Squeeze out the juice by compressing them in a thick cloth, and filter it. Then add half an ounce of sulphate of iron (green copperas) to each six pints of juice, and mix with it half an ounce of common acetic acid. This ink writes very freely, and flows readily from the pen, nor does it become thick when exposed to the atmosphere, as is the case with ordinary writing ink.

When this ink is first used, the writing appears of a violet colour, but it gradually assumes a deep blue-black hue, owing to the absorption of oxygen from the atmosphere.

THE TOILETTE.—XXV.

PLANTS AND THEIR PRODUCTS EMPLOYED IN PERFUMERY (continued from p. 46).

THE leaves of the citronella plant (*Andropogon Schænanthus*), a wild plant growing at Ceylon, when distilled with water, furnish an essential oil much used for honey and other kinds of cheap soap. It is also frequently used for perfuming hair oil and pomades, owing to its cheapness and the small quantity required, but it is not generally liked as a scent.

Clove (*Caryophyllis aromaticus*) is employed in the composition of every kind of perfumery. It yields by expression, or distillation with water, a heavy essential oil, which smells strongly of cloves; and when mixed with rectified spirit, in the proportion of half an ounce to a pint, yields essence of cloves. Half a drachm of this oil with two drachms each of the oils of lavender and bergamot, form a good and cheap scent.

Tonquin beans (*Dipterix odorata*) were at one time usually carried in snuff-boxes to perfume their contents. When used as a perfume, it requires to be employed in minute quantities only. The extract is prepared from the bruised beans, by digesting them (one ounce of the beans to the half-pint) in rectified spirits of wine. The smell of this preparation has been compared to that of new-mown hay.

Cassia and cinnamon are the outer and inner layers of the bark of the *Laurus cinnamomum*. When distilled with water, they furnish the essential oils of cassia and cinnamon, which are employed in the same manner as cloves.

Caraway-seeds, when ground, enter into the composition of powders for filling sachets. By distilling them, an essential oil is obtained which, when dissolved in spirit, produces the extract. It is generally combined with bergamot and lavender when used as a perfume.

The lemon grass (*Andropogon nardus*) yields an essential oil which is commonly called oil of verbena, from its possessing the perfume of that plant. An agreeable and cheap scent may be prepared by dissolving one drachm of this oil and two drachms of essence of lemon in half a pint of rectified spirit.

Mignonette and lilac are both employed in perfumery. When lard is scented with their perfume, either by enfleurage or maceration, it forms pomades of these plants, from which extracts may be obtained by the action of alcohol. One pound of mignonette pomade, acted on by a pint of rectified spirit for fourteen days, yields the extract. As this perfume is very apt to leave the substances scented with it, one ounce of the tincture of tolu requires to be added to each pint to act as a fixing ingredient. The extract of lilac is prepared in a similar way, and from the great resemblance it possesses to tuberose, it is often employed to adulterate that perfume.

THE HORSE.—XIII.

RIDING AND DRIVING.

It is jocularly said that there are three things every man fancies he can do, one of the three being to drive a gig. On the same principle, probably, we never remember having met a man who would candidly allow that he could not then ride, and never hoped to be able to do so. On this subject men are apt to become imaginative, and, if you introduce the topic of equestrian exercise, regale you with such feats of their prowess in bygone days as would do no great discredit to a Centaur. As a rule the less a man knows about horses the more wonderful are the exploits he professes to have performed with them; and he who would not for the life of him throw his leg across one, will unblushingly aver that he has been in the habit of riding to hounds. Only a few years ago a friend of our own, who we firmly believe has never been on a horse in his life, or if he has bestridden one it is only some quiet old pony, described to us a find and start with hounds which he, no doubt, witnessed from the safe medium of a friend's carriage, with all the details, as if he had actually been a participator in that of which he was only a spectator. Nay, we should almost have fancied he must have been foremost in the burst, had we not known, from the little exercise he takes, it would be utterly impossible for him to ride a mile at a moderate gallop without falling off from sheer exhaustion. Riding is so useful and so healthy an acquirement that it is really a pity men do not learn it instead of talking about it. If they would buy a safe steady hack, and ride for an hour or two each fine day, they would cast aside many a sleepless night and dyspeptic day. In reality it is so easy to ride in this way, that there is no excuse for any one who has the means not doing so. Holding these opinions, we cannot suffer articles on the horse to pass from our pen without offering a few hints for the practical guidance of both sexes with regard to riding and driving. Politeness would make us give the *plus* to the ladies, but we find that a series of papers on riding, written on their especial behalf, has already appeared in the pages of this work, and we therefore confine our attention to the sterner sex.

We will start with a word of advice. Avoid the too common error of attempting too much at first; remember you walked before you ran, even in your own natural paces; how much more should you do so when you have to regulate the pace and guide the actions of an animal of which you know little or nothing? Most men, by the time they feel somewhat at home in the saddle, are red-hot to commence a gallop, some of them even want a leap, the result generally being a spill, and if they escape a bad shaking or broken bones, they contract some habit which effectually prevents their ever becoming good riders; and, worse than all, their confidence is apt to become shaken. Were we asked to enumerate the three greatest requisites in a horseman, we should say confidence, confidence, confidence—not that rashness we have spoken of as shown by young riders, who would rush into dangers of which they had no knowledge, but the calm, cool courage which foresees all dangers, and calculates how to ward them off or meet them. What the feelings of an adult resemble when he first mounts even a quiet horse we can have no notion of, having ourselves ridden as long as we can remember, but we fancy he would not be very comfortable on a fidgety or shy one. We have seen the pallid face, and the wild snatch at the reins too often to envy such a one his first ride on the horses which are generally used for such an experiment. The process we recommend is to get some friend who really knows what horses and riding are, to select a fit steed, and to ride the first few times with you.

If he knows what he is about, he will choose a steady quiet cob, neither so high as to cause trouble in the mounting and dismounting nor so narrow as to give a feeling of insecurity when mounted—a very common thing with thin, light horses.

We are supposing the pupil to be quite a novice, and willing to learn; if not, he had better go his own way to work. A good roomy saddle is absolutely necessary, and for a man whose youth is past we should select a Somerset, with a buckskin seat, such as ladies ride on; it is easier, less slippery than a common saddle, and from the way in which the flap is padded gives a greater feeling of security. As to the bridle, if the horse will not go in a single rein snaffle, he is quite unfit for the purpose.

All being ready, our pupil must be placed with his back to the horse's head, which a man will hold on each side to prevent the animal moving. He will then be told to gather the reins to a proper length in his left hand, which also will grasp a lock of the mane. He then raises his left foot, being at the time opposite the horse's near shoulder, and with his right hand slightly turning the left or near stirrup, places the foot in it. He should then put his right hand on the cantle or back of the saddle, raise his body on the foot already in the stirrup until the other is opposite it, and then releasing his right hand he turns himself steadily over the horse and drops into his saddle; with his right hand he places his right foot in the stirrup, and when that is accomplished he is mounted.

Now is the time to determine the length of the stirrups, and as a rule if the feet are taken out and allowed to hang naturally, when the bottom of the stirrup-iron touches the ankle-bone it will be found to be the right length. The rider, on standing in his stirrups, and bringing himself forward, should be able to well clear the pommel of the saddle. More particular directions than this it is impossible to give, as the horseman will find he requires a different length of leather for nearly every horse he rides; for wide ones they should be taken shorter, narrow ones must have them let out, and in our experience we have found horses that required the stirrups to be at least two holes longer on one side than on the other to ride them comfortably. The reason of this we could never ascertain, but so it was, most probably the result of some peculiarity of action.

Having now mounted our pupil, and placed his stirrups as near the right length as we can get them without further trial, the next question is the style of seat he means to adopt; and a very important one, we can assure him, it is. No doubt, most, if not all, professional riding-masters would recommend the military as the best and most graceful style, and as that adopted by our finest horsemen when riding for show in the park. Undoubtedly it looks well when nicely done, and could all horsemen ensure such excellence as the late Lord Cardigan and some others we could name, it would, for a certain class of riding, answer their purpose. But, on the other hand, nothing is more ridiculous than the burlesque of it that is frequently seen. You can tell in an instant the man turned out from the hands of a riding-master. He goes bumping along, with his toes scarcely touching the long stirrups in which he rides, his head leaning towards the horse's ears, one hand firmly grasping the reins held short and close to the mane, save for which he could not keep his seat, and his right dangling listlessly at his side. We say, look at this, and you will see the difference between an accomplished artist and one who burlesques the art. But, better still, compare him with the figures in the Elgin marbles, and you will see the difference between a natural and acquired style of riding. In these marbles you see the easy seat all should endeavour to attain, but which so few achieve. Remember the saddle and stirrups are not intended to alter but aid the natural seat.

In a position as near this model as possible the pupil should be placed on his horse, and then, when he is perfectly safe and steady in his seat, he may be suffered to move on at a foot pace. The rein of a plain snaffle may be placed in his hands—that is, one in each; and, with the direction promulgated by Colonel Greenwood, to pull the left rein when he wishes to go to the left, and the right when he wishes to turn to the right, he may be suffered to ride round the yard, riding-school, or wherever the first lesson takes place, some person keeping near the horse's head in case of any accident. Soon he will feel at home, and instead of clutching at the reins to keep his seat, learn to hold them at a length just sufficient to feel the horse's mouth, and let him step away pleasantly. Many will say that only the toe or, at any rate, the ball of the foot should be placed in the stirrup; in this we do not agree. It is much better to let him "ride home," or with his whole foot in the iron at once. He will feel a greater degree of security, and will not, as is too often the case, have his attention taken from more important things by endeavouring to keep the stirrup in its right place. Moreover, this is the style in which nineteen men out of twenty ride on the road or across country, and to which all of us eventually come let us begin how we may. Assheton Smith and Jem Mason, two of the finest horsemen the world ever saw, certainly did not ride home, but, then, two Assheton Smiths and two Jem Masons are not born in a century, and very few have a figure adapted to ride with the balance-seat as they did. The beginner should not exceed a foot pace until he has acquired something of the rudiments of a seat, but take short lessons by the side of his tutor on a quiet horse. This, no doubt, appears tedious, and is taking days to acquire what to some comes naturally; but it must be remembered we speak of an adult who has never ridden, and we cannot make too sure of our ground as we proceed. With boys a different course would be taken, but there is little necessity for teaching them if they have a good horseman to imitate and a pony to do as they like with.

We have spoken of the military seat as graceful where well attained, and at the same time recommend a totally different one, which to our readers may seem something of a paradox. We had better explain our meaning ere we proceed, by saying that the military seat is entirely an acquired one, used for show on parade or in the park; and we believe that the horsemen who are most accomplished in that style of riding would not care so to ride a long distance on the road or across country. For instance, watch many of the gentlemen who yearly figure in the Grand Military Steeplechase; you will see them sitting down on their horses, their stirrups the right length to give them the greatest amount of power over them, and everything as snug as possible. Notice them a month or two later in the Row, and you will see a totally different style of equitation; one is for work, the other for show.

We recommend our readers to adopt the workman's seat to commence with; if they are of the right figure, and have time to acquire it, let them resort to the other afterwards for special occasions, but we warn them that they are as likely to render themselves ridiculous as to perform in an elegant way, especially should they happen to be short and stout. Let us also tell them that one good style is far better than two bad ones. They may ask, What is the difference in the two styles? we answer in words which we have somewhere read—"The man who rides in the military style hangs on his horse by balance, and depends on his government of the animal's motions to keep his seat. In the hunting seat he sits firmly, and depends on his seat to govern his horse." It will, we presume, take no wizard to divine which is the easiest and most secure of these two modes

of riding. Having progressed thus far with our pupil, he, in time, must be taught to trot, gallop, and leap, on at least an easy horse, or if he is very promising, he may be able to ride rough or queer-tempered ones.

Of one false idea that besets many men unused to horses, let us disabuse them ere we proceed further. Many think that to stick on is the end and aim of riding, and that if they can keep their seat over large fences, or when a horse rears or bucks, they are horsemen. Never was there a greater fallacy in the world. It is true no man can become a horseman without a firm seat, but that alone by no means constitutes one. It is only the A B C on which future knowledge is to be grounded. As well may a boy fancy himself a Greek scholar, because he can run through the alphabet from the *alpha* to the *omega*, as a man imagine he can ride because he has learnt how to sit on. Furthermore, let us tell the adult that very few do become really horsemen, that is, fine horsemen, who are not bred to it from boys; but they may ride sufficiently well to afford themselves a great deal of amusement on easy horses in the hunting or coursing field, and if their heart is in the right condition, and they are well mounted, may even hold a good place. Contrast such a rider with a really accomplished horseman, or many whom you may see get on a raw, half-made horse, and conduct him across a country as if he were guiding a nice piece of machinery. The horse appears to have no will but his rider's (although, perhaps, in reality, a queer-tempered one), who turns him as if with a thread; and, in fact, if he were a Centaur, horse and man in one, the union would not appear more perfect. How is this achieved? The great thing, we answer, is delicate handling of the mouth, or what is technically termed fine hands, by means of which the wish of the rider is conveyed to the animal beneath him without pain or irritation. Secondly, a great knowledge of the horse and how to handle him, as well as what bits will best suit his mouth and formation. And, thirdly, that indomitable resolution and will which lets him know that the rider is not to be trifled with, and that whatever he sets the horse to do he must accomplish. This brings us back again to the seat, and shows that, although not the ultimatum, it is the foundation of good riding, because no man with a bad seat can have good hands; if he is rolling and pitching in his saddle at every motion of the horse, he will inevitably cling to the bridle for support; once do this, and all fine handling is over at once—the man leans on the horse, who returns the compliment with interest, and in the end, either becomes so irritated by the undue pressure on his mouth, or so bores and leans on the bit that horse and rider may be said to exchange places, and the man to carry the horse instead of the horse carrying the man. Some men we know like this kind of thing, because it holds them in their saddle—in fact, they cannot ride unless a horse pulls at them; but you can by no means consider these horsemen, although they may ride desperately over a country. We shall be told, so that their end is attained, it is little matter how it is accomplished. But it must be remembered there are only two ways of doing anything—a right and a wrong; and such men neither ride so easily to themselves or their horses, and, what is of equal consideration, by no means so safely as those who go the right way to work.

We have already occupied so much space even in mounting our pupil for the first time, that further remarks must be deferred to another article, in which we shall give preliminary instructions for the trot, the canter, and the gallop, and describe the proper manner of holding the bridle. The tendency of some horses to shy and rear will also be noticed, and hints given for proper management in such cases, as also when horses are addicted to endeavouring to throw their riders, and to the vice of buck-jumping.

THE HOUSEHOLD MECHANIC.—LI.

PAINTING (continued from p. 46).

Brushes.—The chief article employed in the manufacture of brushes is bristle, the others being fibre, chiefly leaf-fibre of the Mexican aloe (employed for the purpose of stock brushes for rough lime-whitening, and for caustic work, as the alkalies do not soften vegetable fibre, while they gelatinise bristle), and whalebone; the last-named being only used for such brushes as are required exceedingly stiff and coarse.

The consumption of bristle is so great in the manufacture of brushes of various kinds, that it forms a very important article of commerce. Bristles are the strong glossy hairs which grow on the back of the hog and wild boar. Russia is the chief emporium whence are imported the bristles of which the best painting-brushes are made.

rienced workman. Bristles are of various colours, according to the colour of the animal. The lightest-coloured bristle, called the "lily," is most esteemed, and fetches the highest price in the market. Bristles have been imported free of duty since the 19th of March, 1845. They vary so greatly in quality, condition, length, and colour, that it is impossible to give any general quotation, their values ranging from £6 up to £79 per cwt. The "first Siberia" are well known throughout the trade, and are well adapted for painting-brushes; but the "Okatka" are of the highest quality. We will give a quotation of the "first Siberia" for the past few years. In 1867 their price was £29 10s. per cwt.; in 1868, £31; in 1869, £32—being an advance of 14½ per cent. in three years. During the year 1870 this bristle has very materially risen in price, so that in the July of that year it had reached £35 10s., and at the present time is about £38.

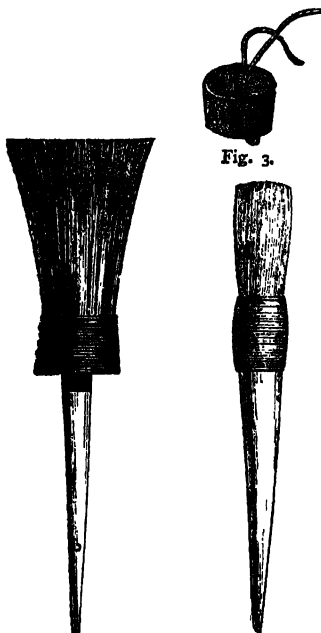


Fig. 1.

Fig. 6.

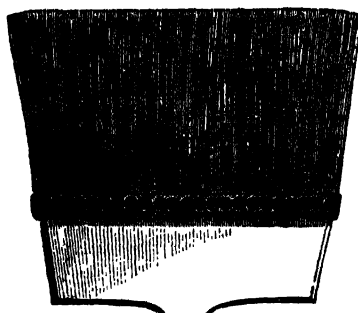


Fig. 7.

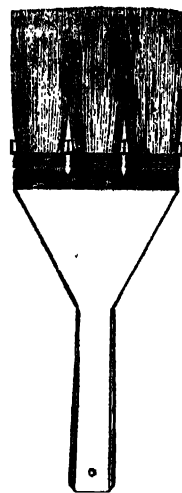


Fig. 9.

Fig. 2.

Those of the Ukraine are the most esteemed; but bristles are likewise imported in considerable quantities from Germany, some, too, from France. The bristles, however, from those countries, although some of them are of the highest value, are occasionally very inferior, and none are suited for the manufacture of painting-brushes. The stoutest bristles are the most valuable, the price diminishing with the size of the bristle. Bristles vary in length from two inches to nine or ten inches, but such as exceed six or seven are generally weak and impoverished. They are sorted into thicknesses by a process termed "engining," which process is performed by means of a set of combs, with their teeth fixed upright. A handful of bristles is first passed through the comb which has the widest spaces between its teeth. This comb retains the thickest and stoutest bristles, allowing all the thinner to pass through. The same handful of bristles is next passed through the second comb, whose teeth are not quite so far apart as those of the first. This comb retains the bristles of the second size—the stoutest now remaining in the hand—and allows all the thinner to pass through. This process is continued until all the bristles in the hand are exhausted, and they are then assorted into strengths. The next process is "dragging," by which the bundles of bristles are divided into lengths. The process is an interesting one, as performed by the hands of an expe-

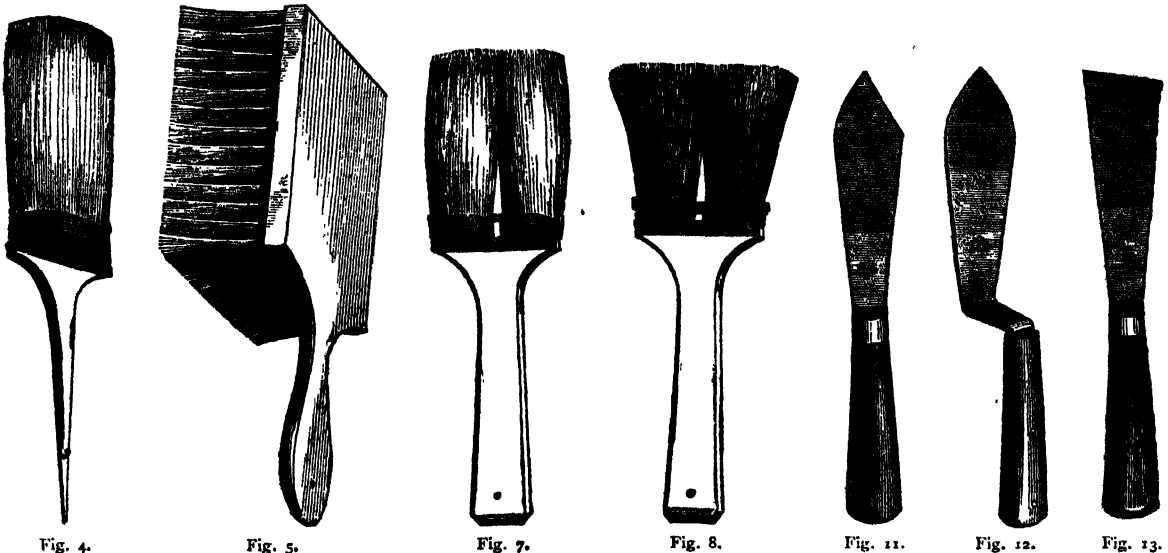
Great preference is given by painters to white over coloured bristles, although brushmakers do not see any difference in the qualities of them. The painter has an idea that in coloured brushes he is likely to be deceived by adulteration with horsehair, &c., although, truly speaking, fibre being of the same colour as white bristle, he is much more likely to be taken in with white ones. As we have seen, the various kinds of bristle are generally distinguished by some Russian characteristic, as the name of the district or that of the collector. With regard to the price of bristle, it is expected yearly to increase, and it is at present considerably higher than ever it has been before—a fact which of course increases the price of the best brushes; and, moreover, there is no reason to think that the price will decline, as the production of bristles is limited, and the demand will, without doubt, continue to increase. The market value of the different kinds is measured by the colour, the quality, the strength or solidity, and length combined. The most valuable and costly are the stiff, the long, and the solid of the different kinds and colours. White bristles are measured by the like rule; all classes, however, fetch a higher price than the like classes of coloured.

The knowledge of how to select a good brush is, doubtless, of the greatest importance to the painter. Even the professed painter, unless he has had considerable

experience in the buying of the several classes and kinds of brushes, is, as a rule, unable to judge of their merits and quality until he gets them into wear, and often purchases on the representations of the vendor (not unfrequently an unscrupulous trader), who tempts with a low price, strenuously asserting, and even vouching for, the superior quality of his adulterated goods, but, perhaps, believing them to be good enough for any purpose for which they are likely to be required. The more judicious painter, however, as a rule, prefers to pay the extra price charged for the goods of a warranted maker; and, without relying on any personal judgment of his own, purchases on the faith of the maker's reputation. To teach the art of judging of a good brush thoroughly, it will be necessary first to describe the substances with which brushes may be adulterated and the effect of those adulterations upon the brushes. It is almost needless to state that the best painting-brushes should be made of bristles only; in fact, an adulterated brush cannot produce good work.

the work in painting. The characteristics of a good brush are, that it will wear square and evenly at the tip or flag, and the hairs resume their proper position, turning rather inwards than outwards.

The great saving effected to the manufacturer by the use of fibre induces many to prepare it so carefully as almost to defy detection, the tips being ground to represent the natural tip of the bristle; but such adulteration may always be detected, even though used to a very limited extent, the characteristics of fibre being decidedly distinct from those of bristle. To discover fibre in the first instance, bend a small number of the hairs of the brush briskly at a sharp angle; if the hairs are bristles, they will instantly spring back and resume their proper position; if any of them are fibre, such as are fibre will remain bent, at any rate to a considerable degree. The surface of fibre, too, is not so smooth as bristle, is harsh to the touch, and has less tenacity. To arrive, however, at a certain conclusion, put the end of any suspected hair into the candle, and, if



Adulteration in the article of brushes is not only general, but so cleverly effected that it requires a practised eye to detect it. The only materials with which brushes can be adulterated without easy detection are horsehair and fibre, the characteristics of bristle being distinct and somewhat peculiar. There is an idea prevalent amongst painters that split whalebone is employed in the adulteration of brushes. This, however, is not likely, since whalebone is too expensive, and the time to split and prepare it sufficiently fine would cost too much; besides which, a brush made with it would scratch the work frightfully. Whalebone is, therefore, only employed in the manufacture of brushes of the stiffest and coarsest kinds, such as stable brushes. In cases in which horsehair only is employed for adulteration, and that in limited quantity, the detection of it is very difficult, and is not likely to be discovered excepting by the experienced, and that after very careful examination. The effect of horsehair upon a brush is to render it limp and bending, and therefore, if used to any considerable extent, will give the brush a want of springiness, which may be suspected, by trying the brush against the hand, sufficiently to reject it. After a little wear, the hairs of such a brush will turn outwards, part one way and part the other, the brush thus becoming totally useless; also, as horsehair will not split as it wears down—which good bristles invariably do—the tip or flag will continue blunt, and leave a mark on

bristle, it will curl, and burn after the manner and with the smell of burnt hair; if, however, it be fibre, it will burn after the manner of vegetable substance, leaving only a fine white ash. This method, as will be readily understood, is no test for detecting horsehair, that being an animal substance.

The colour of fibre is whitish, but, not being of the tenth part the value of bristle, it repays the trouble of dyeing to suit any colour of bristle with which it is required to be mixed. Our express purpose is, to warn the zealous amateur against buying goods commonly exposed for sale at shops other than those of professed paint-brush makers, unless they bear the trade-mark of some warrantable or well-known manufacturer. These people themselves do not understand the articles beyond their outward appearance, and are tempted to purchase the lowest-priced brushes, which yield them the largest profit. They are therefore sure to be the possessors of those thousands upon thousands of painting-brushes annually manufactured which do not contain one-third proportion of bristles; those bristles, too, of the most inferior quality. These brushes are composed of horsehair and fibre mixed, the few bristles which they contain being placed at the exteriors as a set-off. The distinguishing features of a good brush are, that the bristles, viewed endwise, have a tendency to turn towards the centre, and the point of the brush feels soft to the touch when stroked.

The brush should feel to have a good spring when pressed against the hand, and when passed through the hand should feel firm to near the point, tapering, however, softly and gradually towards the flag. To detect fibre, it is a good plan to bend some hairs sharply backwards, as before mentioned. Another sign of a good brush is, that the hairs lie firmly and compactly together; the best bristles, being heavy, naturally lie close, and the brush is consequently compact. Common brushes, as a rule, appear larger than the best of virtually the same size, and thus a good brush will appear smaller, though heavier. Nothing, indeed, is easier than for the maker to give a brush the appearance of a size larger than it is. A practice with them to give common brushes a full appearance, is to put a plug in the midst of the hair; and another is, to let the handle be very thick at the end placed in the bristles, and taper almost to a point towards its extremity. This will cause the brush to work swallow-tail, and it will soon become unfit for any superior work. The handle of a good brush will be found to be of small size, and will not extend beyond the binding; as the binding above the handle will cause the hairs to close over it, and give the brush the inclination to turn inwards towards the centre, which we have described; the hairs of a good brush will lie close towards the point, and be only apart in the centre towards the handle of the brush.

The shape of the handle of a brush should correspond with the shape of the brush itself—for a round-shaped brush, a round handle; for an oval-shaped brush, an oval handle; and for a flat brush, a flat handle. The greater part, however, of oval brushes are made with round handles, which is for the sake of getting up an article in as quick a manner as possible, and at the smallest cost, totally indifferent to the wearing qualities of the brush and its usefulness to the painter. The effect which a round handle will have upon an oval brush will be readily perceived, as it must necessarily weaken the brush on the sides on which it is worked, and cause it to work unevenly. Neither can a brush thus made be expected to wear nearly so long as one fitted with an oval handle, a far greater amount of hair being necessarily placed on two sides of the handle than on the others.

The simplest kinds of brushes are termed *tools*. These tools are of various sizes. In the manufacture of the larger bristle tools employed for house-painting, the bristles are used of the whole length, and are fastened firmly to the handle, which is made of wood cut into a forked shape. The bundle of bristles, being placed between the two projecting prongs, is bound round and secured with twine or cord; the twine being afterwards fixed by a coating of glue, which also serves to protect and preserve the twine. In other kinds of brushes—for instance, the large painting and dusting brushes—the handle, instead of being forked and having the bristles placed between the prongs, is inserted into the tuft. The bristles are first wrapped round the smaller end of the conical-shaped wooden handle, and, being properly secured, are placed in a thin, hollow, iron block, perforated in the centre for the handle to pass through, and forming around this hole a sort of cup for the bristles. The handle is then driven in with considerable force, so that the thick end is held firmly in the centre after the manner of a core, and, by pressing the bristles tightly against the side of the iron, holds them securely.

Stock brushes employed for distemper, whitewash, lime, &c., consist of two or more cylindrical tufts, or knots, placed side by side and fastened separately upon the edge of a flat stock or handle, each knot being divided into two semi-cylindrical portions by the thin edge of the stock between them.

We shall now proceed to give illustrations of some of the most useful and general kinds of brushes, accompanying our illustrations with such remarks as seem necessary,

but reserving particulars and illustrations of special kinds of brushes—for instance, all brushes used for varnishing and for graining in imitation oak and maple—until we come to give directions for execution.

Amongst the inventions and improvements which have taken place in brushes, the most useful appears to be the socket principle, applied to dusters and ground brushes, by which a shorter bristle is made to answer all the purposes of a longer one, by inserting a block of wood at the end of the binding. At first, the great drawback to this system was the frequent occurrence of the brush dividing at the point where the bristles and block of wood met.

If, however, brushes upon the socket principle be made, by good makers, who possess every requisite for their manufacture, and who only employ experienced workmen, they will be found perfectly sound. The brushes manufactured by one of the best firms of brush manufacturers are secured from dividing by means of a band of thin copper, placed beneath the string binding. This system has for its recommendation, that, while the brush is secured from dividing, the possibility of the metal band bursting is also prevented, the slip of copper being wrapped round the hairs of the brush, unfettered by solder, and therefore possessing the ability of expanding and contracting with the hairs and string binding of the brush. The method adopted by other good firms is the system of sockets composed of thin wire soldered together, and patented a few years ago. By this means a socket is formed, having the appearance and strength of a solid band of metal without a joint. These brushes are lighter than string-bound brushes when in use, because the bindings do not absorb water; they can also be kept cleaner than string without risk of injury. Brushes branded with the name of a first-rate maker are always warranted not to come to pieces—in fact, they would be replaced if they did so. As we have before pointed out, it is always better to buy of a respectable dealer, even though at an apparently higher price, for nothing is dearer than an article which is not what it pretends to be.

Fig. 1 represents a painter's dusting-brush; Fig. 2 a socket ground-brush, of round shape. Fig. 3 represents the Soho string-tie or bridle, introduced for the purpose of giving painters a string-bridle ready to hand, which, though constructed on the same principle as their ordinary bridle, has several advantages over it. These bridles, being wound by machinery, are always sure to fit, and, sufficient allowance being made for the swelling of the brushes, they will work better than when tied up by hand. Time is also saved by their use, and, being made of hard and superior cord, they are not so liable to cut as ordinary string. Fig. 4 represents a copper-bound oval ground-brush.

We now come to speak of stippling-brushes, which are of various sizes, those about six inches square being the most useful for general purposes. Some are made resembling hair-brushes, with the handle formed in one piece with the back, as in Fig. 5; others are made after the fashion of blacklead polishing-brushes, with the handle across the back, but these are generally of the larger sizes.

A most useful invention has been recently introduced, the new "reversible stippler," which has been designed to obviate the uneven wearing of the ordinary stippling-brush, arising from the greatest pressure being applied at that end of the brush which is farthest from the hand. In the reversible stippler, the handle is attached by a screw, turning in a brass plate fixed on the back of the brush. By loosening the screw, the brush can be reversed as often as required, while two dowels fitting into the handle prevent the brush altering its position. Amongst the advantages the reversible stippling-brush possesses over the other stippling-brushes are, that it can be worn evenly over its whole surface; that the work done is of a

superior character; and that it will last much longer than those with the fixed handle. The use of the stippling-brush is great, as by it a solidity and uniformity of workmanship is effected, not to be attained by other means. When work is to be stippled, the paint is laid on freely, after the usual manner, and spread pretty evenly; but it is not requisite that it should be so particularly done as it would be were the work to be finished without stippling, as the stippling-brush spreads the colour and leaves it equal. The brush should be held in the right hand, and the work gently dabbed or stippled with the extreme ends of the bristles, which spread the paint evenly, leaving it with a slightly ruffled surface. For this reason, care should be taken in using these brushes not to beat the work too hard, as the hair is apt to get broken and be left on the work. The brushes should be washed with soap and water, without wetting the wood, rinsed with water, and beaten on a dry cloth; this causes the hair to separate and dry more quickly. Fig. 6 represents quilled or fine tools, the hair of which will remain perfectly straight when in use.

Distemper brushes, plasterers' brushes, and brushes of like kind are secured by a narrow binding of wire, string, or leather close upon the root-end of the bristles, commonly fastened to the handle by means of a small notch cut in the wood, by the breaking-off of which many brushes are ruined. A fastening has been patented, upon which the wire of the copper-bound distemper brushes is secured. This fastening consists of a solid piece of copper struck with a shoulder at one end. The pieces of copper are nailed on to the handle and the wire wound over them, after which the whole is soldered together, so that the wire cannot get loose. Should the hair become very dry and slip down the handle, gently push it into its original position, lay the brush carefully in water for an hour or two, when it will be as firm as ever, and in better condition than if it had been re-tied. These brushes are marked with the weight of bristle put into them; those ground necessarily weighing a little below the mark, by reason of loss in grinding, while the unground weigh a trifle over the mark. Fig. 7 represents a copper-bound ground distemper brush. Fig. 8 is termed a washing-down brush; its hairs are five inches long, and are very useful for many purposes besides washing-off. Fig. 9 is a stock or plasterers' brush. Fig. 10 is a nailed stock brush, of which there are several qualities. Those which contain the same weight of bristle put on narrow handles, being thus fuller, are said to work much better than the larger and more spread brushes. Bass compo cleaning-brushes, which are not damaged by lime-work, are made both with and without handles.

Other Painters' Tools.—Fig. 11 is a painter's putty-knife. These knives vary in size from four to six inches, and in price from 10d. to 1s. 3d. each. Fig. 12 represents a trowel stopping-knife, five inches in length; cost, 1s. 3d. Fig. 13 is a chisel-knife, five inches in length; cost, 1s.

THE SICK ROOM AND NURSE.—I.

THERE comes a time in all households when sickness is the unwelcome visitor. On such occasions the care of the patient naturally devolves on the female head of the household; and upon the amount of scientific knowledge which she is able to bring in support of her labour very much depends whether the presence of the undesirable visitant is of long or short duration.

Some acquaintance with sanitary principles in the treatment of the sick is invaluable in a nurse. The greater the deficiency of knowledge the more implicit should be her obedience to the rules for observance laid down by the doctor. The mere fact of calling in a medical man does not suffice to effect the desired cure; he can

only prescribe; it rests with the nurse to see that his directions are carried into effect. If she does not understand the reason of certain instructions being given, she should endeavour to acquaint herself with the character of the malady in its various stages, in order to administer promptly the required remedies.

Apart from medical information, there are rules for the management of the sick room which cannot be disregarded without danger to the recovery of the sufferer. The chief of these to bear in mind is the supreme importance of fresh air. To "keep the air the patient breathes as pure as the external air, without chilling him," is now-a-days recognised as a vital principle in nursing the sick. Contrary to the notion many people are apt to entertain to the contrary, carpeted rooms, closely-curtained windows, feather beds, and heaps of mattresses are fatal to health. Such habits of living may not actually cause sudden death, but they tend to undermine the strength of even a good constitution, and positively oppose Nature's efforts to shake off disease.

In every house not absolutely crowded with inmates, some apartment should be regarded as the sick room, in case of illness. All the arrangements of the room chosen for the purpose should be subservient to its probable use. Scanty furniture, plainly painted or cemented walls, and no carpet, save what may be easily removed, should be the character of its fittings. An iron bedstead for a single sleeper, having curtains only at the head—in case curtains be deemed necessary, as they mostly are, to exclude light from the eyes of the patient—should be the principal piece of furniture. No valances should border the bedstead. Such hangings are at all times out of place in a sleeping-room, and are essentially so wherever free ventilation is to be obtained at the cost of mere appearance. Neither should a tester cover the top of the bedstead.

There are some special cases in which the exclusion of air is a consideration of chief import. Inflammation of the lungs and bronchitis are of the number. Under such circumstances, suitable means must be adopted to secure the desired end; but in all sanitary points, patients suffering from the latter class of complaints require their general health to be maintained by the surest means, and overcrowding, whether by furniture or individuals, is an error carefully to be avoided.

The aspect of a sick room should, if possible, be exposed to the morning sun for some hours daily. It is easier to exclude the sun's rays than to dispense with them.

The position of the bedstead should be out of any current of air that may arise from opening a door or window, and the bedstead should not be close to the wall; at least as much space as a person would require to pass between the wall and the bedstead should be allowed.

Every sick room should have a fireplace in it, with one of Arnott's improved ventilating valves communicating with the chimney. The valve should be placed about five or six inches from the ceiling. The value of an apparatus of this kind in a sick room may be best understood by the great freedom from smoke stains in rooms where gas is burned, compared with those apartments where such arrangements are not in force. Gas is not a suitable light for a sick room; and, in its absence, other vapours, equally noxious, require to be carried off as speedily as exhaled.

The prevailing notion, that an apartment may be effectually aired by leaving the door open, requires refutation. If the door be opposite the chimney-piece, and a fire be burning, a current of air is doubtless caused which quickly changes the atmosphere of a close room. But the air thus admitted is, after all, only the air from a different part of the dwelling-house, and at night this kind of atmosphere is liable to be extremely hurtful, owing to the effluvia from the basements, where sinks and drain-tubes are too often foul and neglected. A better plan is, to open a staircase window at the time of opening the door of the sick room,

in order to ensure air from the outside being admitted. Or, if the weather be temperate, a closed door and open window (two or three inches from the top) are to be preferred. Miss Nightingale says that people never take cold in bed, and that, far from night air being injurious, she was assured by a great authority on such matters "that the air is never so good as after ten o'clock, when smoke has diminished; but then it must be air from without, not from within, and not air vitiated by gaseous airs."

A very agreeable mode of keeping a sick room well ventilated is to have some staircase window in the lower part of the house open, and the door of the sick room open likewise. To prevent draught, a thick clean sheet should be nailed across the doorway, or suspended on a rod. The sheet is easily pushed aside by people going in and out, and possesses the advantage over ordinary curtains that it may be sprinkled with disinfecting fluids if the nature of the patient's illness should render the precaution necessary. Another advantage in this mode of hangings is, that the opening and shutting of the door, so distracting to invalids, is prevented.

It should be needless to mention that strict cleanliness is most desirable in a sick room—not only should the floor be swept daily, but the walls also. The mode in which particles of infectious matter are carried from one spot to another is among the most interesting facts recently known, connected with the spread of disease. Each particle of dust may, and in many cases does, become a vehicle for communicating maladies, that to all appearance are confined to the person of the sufferer. A skilful nurse directs her attention fully as much to the prevention of disease from spreading as to the curing of the actual patient. In this view a nurse cannot err on the side of cleanliness, provided her work be performed quietly and without fuss. It requires considerable intelligence, however, to carry out the *preventive* system, and entails much labour on the nurse which she might otherwise escape; but the reward exceeds the pains.

The emptying of slops and removal of all offensive matters should be done instantly, not suffering such work to be delayed until a servant can be had, or what not. The cleansing of all chamber utensils used in infectious sickness should be thorough, and when the vessels are to all appearance clean, they should be rinsed out with disinfecting fluid. A jug containing a mixture of Condyl's fluid and water should always be at hand in the closet for this purpose. In ordinary illnesses, scalding water and soda are sufficient.

Personal cleanliness is also of urgent moment for both invalid and nurse. The cases of illness are very few where sponging the body of the patient is not attended with beneficial results. The vast system of excretion carried on in our system by means of the pores of the skin can only be kept in order by this means. It is estimated that our bodies present a surface of twenty-eight miles of excretion, through the skin alone. It is obvious that if this channel is choked—as in illness it is especially liable to be—the body cannot be in a condition favourable to the restoration of health. Active perspiration in a healthy state of constitution carries off many dangers to which the inactivity consequent on illness exposes the sick. Sponging with tepid water, or tepid vinegar and water, frequently produces a disposition to slumber when all other remedies have been unsuccessfully tried. If a medical man is in daily attendance, his advice had better be asked in the matter should any doubt prevail.

As far as the nurse herself is concerned, at no time is free ablution so useful as when discharging her duties in the sick room. If the means are at hand, she should take a cold or tepid bath daily. She should likewise avoid the frequent use of stimulants, neither should she neglect any known means to preserve her own health. A mistaken notion of self-devotedness sometimes leads a nurse—

especially if a wife or mother—to renounce all personal comfort, and to deny herself sufficient repose and food. Continual watching, however, by the sick bed tells at last upon the soundest health, and a suspension of labour becomes in the end necessary. Five hours uninterrupted sleep are as little as any nurse should be allowed within twenty-four hours. Before retiring to rest, she should change all the clothes she has worn by day, and thoroughly wash herself. Previous to resuming her duties, she should enjoy the comfort of a light nourishing repast. Irregularity of repose and taking food are evils for the nurse to guard against if she desires to discharge her duties faithfully towards the patient committed to her charge. Indirectly her own capacity of endurance during the slow progress of a sufferer towards health affects the patient, and may either retard or secure his recovery.

Intimately connected with the bodily ease of a sick person is the condition of his mind. Nothing so completely tends to promote health of mind in a suffering frame as quiet, order, and pleasing associations. A sick room, therefore, should be free from every sign of litter and confusion. Everything that is prettiest, brightest, and of pleasantest remembrance should, as far as possible, be brought into use. The patient should not be suffered to suppose that his illness is inconveniencing others, or that the expenses his illness entail are embarrassing to the household. It is better, as far as possible, to keep from his mind the sad picture of a whole family curtailing its wants and pleasures in order that one member may be extravagantly cared for, and that member, perhaps, the mainstay of all.

Flowers are almost invariably a pleasant addition to the surroundings of a sick bed. They impart an air of cheerfulness which few other things bestow, and generally call up agreeable pictures to the mind connected with out-of-door scenes of which they may have formed a part. A few years ago it was thought that flowers were not healthful in sleeping-rooms; but that error is happily dispelled, and, with the exception of some highly-aromatic plants, flowers are now considered perfectly admissible. Another great source of pleasure and comfort, apart from its value as a ventilator, is a bright fire; add to its genial glow the pleasant crackling of the embers and the soothing sound of the homely kettle boiling on the hob, and a rude, monotonous sort of melody is produced which is pleasing to most invalids. Again, with regard to the manner of serving the slender meals which may be ordered. Anything like slovenliness in the manner of dishing up the little repast—untidiness, or want of brightness in the china, plate, or linen—is sufficient to create a disgust when the appetite is delicate, and needs coaxing into action. For the sake of the earnest care which the elaborate details may have occasioned, a kind-hearted patient will often try to eat, to prevent disappointment. Difficulties may sometimes oppose themselves as to the means of carrying out these suggestions; but let the nurse convince herself of the correctness of the principle, and she will manage to effect her end.

Above all things, any excitements, especially of a depressing nature, should be avoided in the sick room. If business matters must be discussed, they should be as lightly touched upon as possible. Any matters of uncertainty and doubt should not be mentioned. If bad news has to be communicated, the hopeful side of the question should be presented, and dilated on. Palliations of actual misfortunes, and not forebodings of anticipated troubles, should be the method observed until the mind and body are strong enough to see matters in their true light.

Over-fatigue, even though occasioned by pleasurable emotions, should be guarded against. The excitement of the day, although not always felt at the time, is apt to be destructive of repose at night, when both patient and nurse need the natural restorative of sleep.

• AMATEUR TURNING.—I.

AMONG the arts practised for recreation, that of turning has long occupied a prominent place; for, although some of its more complex operations are so intricate as almost to entitle it to rank as a science, in its simpler and more usual branches it is so purely mechanical, and demands so little intellectual exertion, while at the same time its results are so pleasing and fascinating, that it seems specially adapted to form an agreeable relaxation. It has also the advantage of being a healthful employment, and of furnishing excellent exercise for those whose usual

avocations are sedentary; in this respect the lathe is particularly useful, since it compels the worker to maintain a standing posture, and occupies the foot as well as the hands, thus calling the muscles of the whole body into play. With most ladies, it is true, turning has never been a favourite occupation, but that this should continue to be the case we see no sufficient reason. In decorative turning, such as that usually practised by amateurs, it is not necessary that there should be any very heavy work, and the elegant fancy, the light and delicate touch, and the patient skill, characteristic of the female sex, are all specially called for in this art.

Although, in its more simple forms, the lathe is an instrument which dates from the most remote antiquity—the potter's wheel, a piece of machinery which has been known and used by almost all, and even the rudest, nations, being only a variety of it placed vertically instead of horizontally—it has during recent years only been brought to what we may almost consider as perfection. In our own times it has been so much improved by the invention of complicated chucks and appliances, that it is difficult to say what object cannot now be turned in the lathe; for it has been made to do the work of the engraver, in executing patterns and pictures upon metal plates, and that of the statuary in carving medallions.

Among inventions for increasing the power of the lathe are:—the traversing mandrel, for rendering simple the cutting of screws; the oval chuck, for working elliptical designs; the eccentric chuck, which enables the turner to vary his work by altering its centre at pleasure; the straight-line chuck, by which work is performed in straight lines; the compound eccentric, geometric, oblique, and epicycloidal chucks, which produce beautiful and intricate

carved patterns; the rose engine; and the sliding and circular rests which are used with the above chucks; as also the eccentric and universal cutters. The above appliances are most of them very expensive, so much so, that the use of some of them is almost confined to wealthy amateurs; for no turner who works at the lathe for bread would be willing to incur so great an outlay. Wonderful and interesting as they are, however, it should be observed that these contrivances are of little use except for ornamentation; all the real work in turning is to be executed with the common lathe, the common concentric chuck, and common inexpensive tools, and with these a

skilful and ingenious workman can also produce a very considerable variety of beautiful ornaments.

The Lathe.—Lathes are made of all sizes; some very large, for working iron, steel, &c., to be turned by steam power, and some very small, as those employed by watchmakers; but for the amateur turner, who will work chiefly in wood and ivory, a lathe of medium size is to be preferred, and one turned by a

treadle, which for the work to be executed is superior to any other power, since it is the most completely under control. Lathes made of iron are compact, do not easily get out of order, and last for a long time, though they are open to the objection of having a kind of elastic tremor

while in use, which is disagreeable, and sometimes injurious to the work. From this wooden lathes are comparatively free, and are therefore preferred by many. A wooden lathe should be constructed of thoroughly well-seasoned timber; and oak is the kind of wood best suited for the purpose.

Our illustration (Fig. 1) gives the most common and useful form of the lathe. A A are the feet upon which it rests, and these should, to prevent motion, be firmly screwed to the floor. B B are the uprights, which form the legs of the lathe, and support its bed. C C is the bed of the lathe, which may be of any length, to suit the proposed work. D D is the headstock, or left-hand puppets; this is composed of one piece of cast-iron; the lower portion of it fits into the opening in the bed, and is secured by screws, while the body of it rests upon the bed itself: the upper part is pierced to receive the mandrel. E is the headstock, or back puppet; it slides along the bed, and is secured by the screw, F; it has a steel spindle, G, which screws backwards and forwards, and the use of the contrivance is to support long

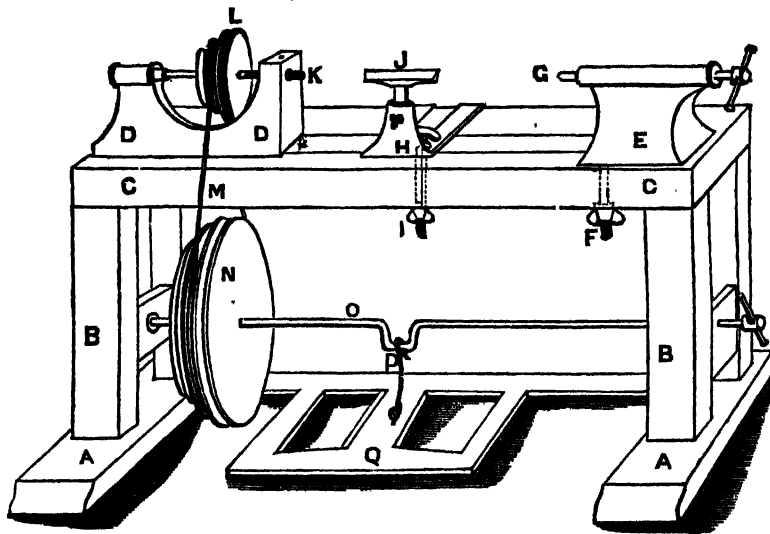


Fig. 1.

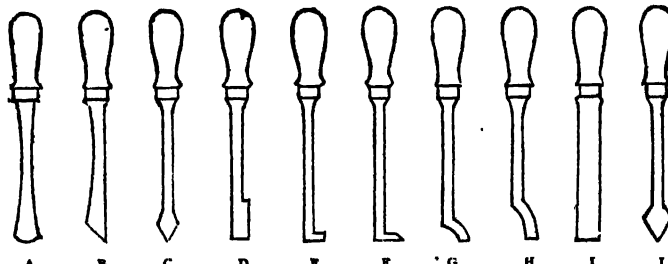


Fig. 2.

pieces of wood; the screw has a hollow nose, which can be substituted for the pointed one if the work requires it. H is the rest on which the tools are supported while the work is in progress; the screw, I, secures it to the bed, and by loosening this it can be moved longitudinally, while the forked foot admits of a transverse motion, and the top, J, which fits in a socket, can be raised or lowered; this latter part it is well to have of different sizes, to suit different kinds of work—one socket and foot will serve for all. K is the mandrel, which is better to be long, as in that case there is less vibration; it works in a metal collar in the puppets, and upon the end of it the chucks, which support the article to be turned, are screwed. The mandrel is turned by the small wheel, L, which has in it three grooves of different diameters, and as the band, M, is placed in the larger or smaller of these, the velocity with which the lathe turns will be altered. N is the band which connects the large and small wheels, and conveys the motion from the former to the latter; twisted catgut is the best material for forming this band, as it wears better, and does not expand and contract so much with the variations of the atmosphere as cord. The great wheel, O, has V-shaped grooves like the small one. The spindle, P, which forms its axis, has a crank, connected by the link, Q, with the treadle, R, which when acted upon by the foot gives motion to the machine.

The cost of lathes varies, of course, according to their size and capacity: those suited for the amateur may be bought of the London makers at prices ranging from £6 to £25.

The lathe, when in use, causes the article to be turned to revolve from back to front above, and from front to back below; thus, the tool, being held in front, cuts the material by meeting it above; but the machine can be made to move as readily in the opposite direction, which is sometimes useful, as in polishing, &c. The ordinary lathe can be made to serve for the more complicated chucks, rests, &c. As the turner requires abundance of light, it is well to place the lathe in front of a window; and if a skylight overhead is also to be had, it will be found advantageous.

Tools.—The tools used in ordinary turning are mostly varieties of the common chisel and gouge; but they are more stoutly made than those used by the joiner and wood-carver, and are generally more eccentric in their shape. In Fig. 2 we give a number of the most useful. A is a gouge, which is the first tool used in turning wood, it has a rounded edge, which is less liable to chip the wood, and serves best to reduce it from its first roughness. As in wood carving, the gouge is, in turning, an exceedingly useful tool, and easy to manage. At B is shown a chisel, which, in practice, is used to follow the gouge and reduce the wood left in ridges to a smooth surface. Its cutting edge is, for greater convenience, oblique. Gouges and chisels will be required of different sizes. The point-tool, C, is useful for finishing shoulders, flat-ends, and small mouldings; D is a right-hand tool, of which a left-hand tool is the reverse, these cut with both bottom and side; E, F, G, and H are different inside tools for hollowing out cavities; I is called a graver, and is much used in turning metals, but it is also a most useful tool for turning ivory, bone, and very hard woods, which are apt to chip with the chisel; it is not a particularly easy tool to manage, the end and one of the sides having cutting edges. J is a parting tool, useful for cutting off work, and similar purposes. The above tools may be considered as indispensable. Most of them are sold by the best London tool-makers at 10d. each, but some few will cost as much as 2s. 6d.

Milling tools are also very useful to the amateur; they are not expensive, and by the aid of them articles can be enriched with much pretty ornamental work. They are especially adapted to soft woods, which would not

bear working into delicate patterns by other methods and will give a finished appearance which could only otherwise be gained with costly apparatus. The milling tool consists of a small metal wheel with a handle round the edge of which is cut the pattern. This is held tightly between the rest and the work, just sufficient space being left to allow the wheel to revolve freely; and, as it does so, it impresses the design upon that portion of the wood with which it comes in contact.

In addition to the tools required for turning, the amateur will also find it necessary to have a few carpenters' tools, to be used in various operations about his work. His materials will frequently require to be sawn, and he will need a hand-saw and a tenon-saw; a circular saw is also exceedingly useful, which can be fitted on and turned by the lathe. He will require callipers, compasses, and a square; a hammer, files, gimlets; a screwdriver, nails and screws of various sizes; a hand-vice, a grindstone, a piece of Turkey stone, an oilcan, and a gluepot, together with sand-paper and Dutch rush for polishing.

It is well for turning-tools to be fixed in handles of about the same size, that the hand may be as much accustomed to all as to any single tool, and may use them with the same facility. It is well to have a tool-rack near to the lathe, in which to place them; and they should be kept rubbed with neat's-foot oil to prevent rust. Sharpening them will require some care and tact, as in grinding it will always be necessary to keep the bevels at their edges to their original angle, and the edges generally must be kept true and straight.

Cements.—In fixing work for turning, some kind of cement has constantly to be used, and glue is that most generally employed. It should be soaked in cold water for some hours before it is required, and may be known if good by its swelling without dissolving. In the gluepot, a quart of water should be put to half a pound of glue, and the boiling should be continued slowly till it is perfectly dissolved and smooth. As little glue as possible should always be used, and, in order to have glue strong and good, the gluepot should frequently be cleansed out, and all that remains in it thrown away. Articles when glued together, or into the chucks, should be allowed to remain several hours to set and become firm, with a leaden weight on them to keep them in place.

HOUSEHOLD LAW.—XXII.

LOCAL BOARDS OF HEALTH.

THE law in connection with the local government of towns is one of the most perplexing subjects which the householder has to consider. First you have a series of Public Health Acts, then comes a mass of Statutes relating to Diseases and Nuisances, which are to be read together with the previous Acts. Close upon these a Public Health Amendment Act is passed, which repeals the whole of those which have preceded it, and entirely alters and remodels the law on the subject. This amendment has been repeated at intervals for the greater part of the century. Besides which, does anybody clearly know what the duties of a Local Board of Health in reality are? Have the members thereof any other occupation besides digging pits in the streets and obstructing the traffic, or meeting periodically for the purpose of abusing one another? We have carefully sifted the question, and with much difficulty discovered that the Local Boards of Health have other duties to perform besides those we have enumerated above. As information on this subject is extremely rare, and therefore likely to be instructing, we hasten to lay before our readers the result of our investigations. We have endeavoured to make the subject as clear and intelligible as possible; but so clumsily drawn and incomprehensible

are the Public Health Acts, that we fear our undertaking will not meet with the success we could desire.

Local Boards of Health or, as they are called by the latest Act, Urban Sanitary Authorities, are constituted under the Public Health Act, 1875. Their object is to maintain and keep in repair the streets of the district over which they have jurisdiction, levying rates to carry out that object, and to provide means to insure the health of the population. The first thing we must look at then must be the nature of the districts which are under the management of these Local Boards. By the Act all England, except the metropolis, is divided into districts called Urban Sanitary districts and Rural Sanitary districts, which are made subject to authorities, called respectively, Urban and Rural Sanitary Authorities. Of the first mentioned, Urban Sanitary districts, there are three principal divisions. First, boroughs constituted such either before or after the passing of the Act, and in these the Local Authority consists of, and its duties and powers are exercised exclusively by, the mayor, aldermen, and burgesses acting in council; secondly, Improvement Act Districts, which are those which do not comprise in their areas either a borough or Local Government district—Improvement Commissioners are the proper authorities for these districts; thirdly, Local Government districts constituted such either before or after the passing of the Act, and in which the Local authority is selected from the ratepayers and householders resident within the district. The Rural Sanitary districts are governed by authorities, who may be the guardians of any union not coincident in or with an Urban district. To these authorities above mentioned are transferred all the powers and duties which formerly belonged, before the Act, to various bodies. The Local Boards and Improvement Commissioners, who, by the Act, become Urban Sanitary authorities, are made bodies corporate when not previously incorporated.

And now it is necessary to enter into a short explanation of the powers and functions of the Local Government Board, which must not be confounded with the Local Board, as we shall doubtless see. An Act of 1871 gave the force and powers which it possesses to the Local Government Board. It was found expedient to concentrate in one department of Government the supervision of the laws relating to the Public Health, the relief of the poor, and various forms of Local Government; and from and after the establishment of this Board the Poor Law Board ceased to exist. Many other duties of other bodies were transferred to this Board, which gave it the importance and responsibility it now possesses. Its constitution consists of a president, appointed by the Crown, and several ex-officio members, as the principal Secretaries of State for the time being, the President of the Privy Council, and the Chancellor of the Exchequer. By the Public Health Act of 1875 further powers were vested in this Board. The Local Boards are generally under the supervision of the Local Government Board, and many questions as to the election and qualification of members are referred to it. If the Local Board has made default in providing the necessities for the good management of the district under its charge, such as by the inattention to an insufficiency of water supply or defective drainage, on complaint to the Government Board it is the province of that body to enforce the proper performance of the Local Board's duty in the matter of such complaint, and very full powers are given to the Board to enable it to do so effectually. Thus all questions relative to drainage, the superintendence and repairs of highways—always an important subject of parish jurisdiction—the management of local rates, of lighting, questions of water supply, the regulation of streets and buildings, of markets and public pleasure grounds, all now come under the management of the authorities constituted by the Public Health Act,

and probably enlarged powers for providing an efficient water supply will ere long be conferred by an Act now passing through Parliament. In fact, there can be no doubt that a great advance towards the proper government of parishes has been made, in spite of the difficulties that must always occur when an innovation is introduced.

We have now given, as clearly as we can, a description of the different Boards which are formed for the purpose of governing the several districts of the country, and we have stated also of whom they are composed. As we have seen that in corporate boroughs the Board is composed in part, and more often than not, wholly, of the town council, let us inquire into the qualifications which a man must possess, to enable him to offer himself for election for a town councillorship, or even to vote for a candidate for that office, as an humble burgess. Of the other section of electors—namely, ratepayers—we need say nothing, having sufficiently explained their qualifications in a preceding number.*

As a man must first of all be an elector before he can hope to become a successful candidate for any office, perhaps it would be more logical if we began by stating what qualifications are required for an ordinary "burgess," before describing those of a town councillor.

Every person, then, of full age, who, on the 31st of August in any year, shall have occupied any house, warehouse, counting-house, or shop, within the borough during that year, and the whole of each of the two preceding years, and during the whole of such time shall have been an inhabitant householder within the borough, or within seven miles of it, to be computed by the nearest public road or way, by land or water, provided (1) that he shall have been rated to the relief of the poor during the whole of such time, and paid on or before the 31st of August all such rates, and borough rates, if any, as shall have become payable by him, except such as shall become payable within six calendar months previous thereto; (2) that he shall not be an alien; (3) that he shall not have received parochial relief or other alms, or any pension or charitable allowance from any fund entrusted to the charitable trustees of the borough, within twelve calendar months next before the 31st of August—is a burgess.

So much for a burgess. Having acquired these qualifications, he will perhaps offer himself for election as a candidate for the office of common councillor, the next position of dignity to be considered.

In addition to the qualifications required of him as a burgess, a person, in order to be eligible for the dignity of a councillor, must not be in holy orders, or the regular minister of any dissenting congregation. He must be seized or possessed of real or personal estate, or both—in boroughs divided into four or more wards—of £1,000 or be rated to the relief of the poor of such borough, upon an annual value of not less than £30. In boroughs divided into less than four wards, the qualification is property to the value of £500, or the being rated to the relief of the poor above an annual value of not less than £15, and in both cases the rating refers to the sum inserted in the rate-book as "rateable value," and not as "gross estimated rental." He must not, however, hold any office of profit in the gift of the council other than that of mayor, or be concerned directly or indirectly, by himself or his partner, in any contract or employment with or on behalf of the council; but from this disqualification is excepted—the being a proprietor or shareholder of any company contracting with the council for lighting, or supplying with water, or insuring against fire, any part of the borough.

After his election, the town councillor must preserve the qualifications which entitled him to it, and must also

* HOUSEHOLD GUIDE, p. 256, vol. iii.

possess others during the time he continues in office, namely—

1. He must reside within the district or part of the district for which he is elected, or within seven miles thereof, and be seized or possessed of real or personal estate, or both, to such value or amount as shall be fixed by order in council; but it is not to exceed £1,000, either within or without the district. The distance of seven miles, in this case, is to be measured in a straight line along the horizontal plane from point to point, and not by the nearest practicable way.

2. The above residence qualification, and also the being rated to the relief of the poor of the parish, township, or place within the district, at a certain annual value, not to exceed £30. But if two or more persons be jointly seized or possessed of the same property, or be jointly rated in respect of any property which, if equally divided between them, would qualify each to be elected, each of such persons is qualified to be elected. Any person possessing the qualifications necessary for a town councillor is, of course, eligible to serve on a Local Board of Health; but before the elected members of the Board can act as such, they must sign a declaration to the effect that they possess the qualifications necessary to render them eligible to act as members of the Board, and the signature must be executed in the presence of two members of the Board.

The qualifications for persons seeking to be elected on a Local Government Board in corporate districts, are, of course, the same as those required for candidates for Local Boards under the Public Health Act. But there is a slight difference in their qualifications when elected. Members of a Local Board must possess those we have enumerated above; but members of a Board regulated by the Local Government Act must be in the possession of others, which, though almost the same in substance, differ in a few particulars from the qualifications necessary for members of a Local Board of Health.

As in the latter case, no person is qualified to continue to be a member of a Local Government Board of Health, unless he is, at the time of his election, and so long as he shall continue in office by virtue of his election, resident within the district for which, or for part of which, he is elected, or within seven miles thereof, and is seized or possessed of real or personal estate, or both, to the value of not less than £500 in districts containing less than 20,000 inhabitants, or to the value of not less than £1,000 in districts containing more than that population; or rated to the relief of the poor of the district, or of some parish within it, upon an annual value of not less than £15 in districts containing less than 20,000 inhabitants, or on an annual value of not less than £30 in districts containing over that number.

This annual value must be understood, as before, to mean *rateable* value. Where two or more persons are jointly rated for one property, they are both eligible, as in the similar case mentioned above. Further than this, it is expressly stated in the Act that the same property shall not at the same time qualify both the owner and occupier of it.

CONFECTIONERY DAINTIES.—III.

Rice and Milk.—Simmer for two hours, until it becomes a thick paste, one pound of rice in five pints of water; then mix with it a quart of milk. Then add some treacle or sugar, or else pepper and salt, boil for a short time, and serve it at table.

Gloucester Jelly.—Put an ounce of sago, rice, pearl-barley, and hartshorn shavings into three pints of water. Boil until the water is reduced to one-third, strain it, and

let it get cold, when it will form a jelly. Half an ounce of isinglass or gelatine may be used instead of the hartshorn, if preferred.

Sugar Biscuits.—Mix half a pound of flour with four times the quantity of powdered loaf-sugar and the same weight of butter. Then knead the paste with eight eggs, a little cinnamon, and some cream, and make it into small and thin biscuits.

Rice Milk.—Make hot a pint of milk, to which nutmeg or cinnamon has been added. Then add to it gradually a table-spoonful of ground rice, rubbed smooth in a little cold milk, and stir it, and allow it to simmer for two minutes, taking care that it does not burn.

To Pickle Elder Tops.—Cut off in the middle of April, about six inches of the tops from some young elder sprouts, and put them for a short time in boiling water, and then pickle them in vinegar, with salt and white pepper.

ODDS AND ENDS.

Dr. Clark's Process for Softening Hard Water.—When spring water which has been obtained from chalk soils is examined, it is found to contain a considerable quantity of chalk in solution. And this will be found to be the case, although the water may be pleasant to drink, and also be bright, clear, and sparkling to the eye. When such water, however, is boiled, it at once deposits the chalk it contains, owing to the carbonic acid by which it was held in solution being driven off by the heat. The chalk may be removed from water by what is called Dr. Clark's process; this consists merely in adding to the water sufficient lime to remove the free carbonic acid it contains, when the chalk is at once thrown down. If this sediment be then allowed to settle, and the clear fluid carefully decanted off, the water, instead of being hard as it was before, will then be found to have become as soft as rain water. It will also be found that kettles in which this water is boiled will not become furred, and that clothes may be washed in it with a much diminished consumption of soap and soda. This process is employed to purify the water supplied to the inhabitants of Canterbury, Caterham, and Tring. The method employed is to add an excess of slacked lime to water contained in a reservoir, and removing the excess of lime by allowing an additional quantity of water to enter, until a little solution of nitrate of silver added to some of the water produces only a faint yellow tinge.

To Clean Doeskin Riding Gloves.—First wash them in soap and water, to remove the dirt, and then pull them into shape. Be careful not to wring the gloves while washing them, as that puts them out of shape, and makes them shrink. Then lay the gloves on the table, and rub them with colouring matter made into a paste with beer or vinegar. The materials to be employed for this purpose will depend on the colour of the gloves. If white, pipeclay should be used; light yellow gloves require yellow ochre to be mixed with the pipeclay; but if bright yellow, yellow ochre alone should be employed. When the gloves are dark-coloured, use a mixture of fuller's earth and rotten-stone. When this has been done, the gloves should be dried gradually, otherwise they are very apt to shrink. When the gloves are half-dried, they require to be well rubbed and stretched; if this is not done, instead of being soft and pliable, they will be stiff, and likely to tear when put on the hands. When they are dry, beat them with a cane, lay a sheet of paper over them, and iron them flat with a warm iron, by which they will be made to look like new. Great care must, however, be taken that the iron is not too hot, otherwise the gloves will be spoiled.

HOUSEHOLD DECORATIVE ART.—XLIX.
TEMPORARY DECORATIONS FOR AN IMPROMPTU BALL
 • OR CONCERT ROOM (*continued from p. 41*).

In the *HOUSEHOLD GUIDE*, No. 74, we gave a series of designs for the decoration of a room which it might be desirable to fit up for the purposes of a ball, concert, or other entertainment. The details then given included

the room, the fancy lanterns, fully described in our previous article, will be found amply sufficient. The statuary may be obtained on loan from the modellers on moderate terms. The figures should, of course, be selected with reference to their appropriateness to the purpose for which the room is to be used. The artist has indicated the position of a landscape at the end of the room behind the fountain. Obviously it is not intended that a



DECORATIONS FOR A TEMPORARY BALL-ROOM.

wall decorations, lanterns, temporary fountain, festoons, statuary, pedestals, and other ornamental matters. The accompanying illustration represents the appearance of the room when completed. The raised platform for the orchestra would be at the end of the room opposite to that shown in our engraving. Ornamental gas-burners on pedestals, decorated with flowers, afford an excellent way of lighting the platform, placed of course, at the sides, so as not to impede the view, and throw a good light on the features of the performers. For the body of

valuable work of art should be placed in such a position ; but if there is a sufficient amount of amateur talent to supply a spirited sketch, with landscape and figures, it might be well employed in this direction ; and if such is not the case, it may be obtained at a very small expense from a professional decorator. If it is desired to procure a certain amount of effect for a very small cost, printed wall-papers, with a landscape subject, may be purchased, and a showy, if not a very artistic result obtained.

ODDS AND ENDS.

An easy method of making imitation Leaves exactly resembling the originals.—Take a piece of smooth board and cover it with a thin layer of French chalk (steatite); then place on it a leaf, and make it lie as level as possible. Now take a large piece of modelling-wax and make it soft by holding it before the fire, or in hot water, and press it down carefully over the leaf, great care being taken to fill up all its cavities. When the wax has cooled, remove it from the board, to which it is prevented from adhering by the steatite previously applied to its surface, and which now adheres to the face of the wax. Then warm another piece of wax, and apply it over the other surface of the leaf. When cold, separate the two pieces of wax, and remove the leaf they enclose before the composition has had time to become hard, when it will be found that we have thus obtained an exact mould of the leaf employed. Before using these moulds, the interior should be carefully moistened with water to prevent any minute air-bubbles adhering to its surface. Then fill each mould separately with a very thick cream of plaster of Paris and water, and then place them together until the plaster sets sufficiently hard to be removed. The imitation leaf is then to be painted with water-colours to resemble the original, and allowed to become as dry as possible. The plaster cast is then to be placed in melting paraffine to render it waterproof, and give it a glossy surface; and is afterwards to be carefully polished with steatite and the tip of the finger, or with a very soft rag.

Why Seeds should be kept Dry.—Seeds of all kinds, whether intended to be employed in agriculture, or for the garden, must be most carefully preserved from moisture, for if they become sufficiently damp to cause germination to commence, they must necessarily perish, since vegetation cannot go on.

Germination of Seeds.—The time required for the germination appears to vary in each species of seed. Adamson found that the periods required for the germination of the following seeds were—wheat and millet, one day; spinach, beans, and mustard, three days; lettuce, four days; melon, cress, and cucumbers, five days; radish and beetroot, six days; barley, seven days; cabbage, ten days; parsley, forty to fifty days.

FISHING-TACKLE.

I.

THE various requisites necessary for fishing, if purchased at the shops, will require considerable outlay; but many of the more important of them may, with the necessary knowledge and the expenditure of a little patience and ingenuity, be very well made at home. We shall offer a few hints to our readers on the proper methods for the home manufacture of such things as may be readily made, and on the best mode of purchasing those supplied by the professional maker.

Making Rods.—For a float-rod no wood can be better than nut or hazel; and the shoots of the cob-nut, from their straightness and the length to which they grow, are to be preferred. The wood should be cut about Christmas, and allowed to remain for twelve months, to season. It is better placed in the open air (but where it can be kept dry) for this purpose. The piece for the stock should be at its lower end something more than an inch in diameter, and the middle pieces should be so selected as to taper gradually towards the top, which, for the sake of greater strength, should be a ground-shoot. The twigs must be trimmed off, but not too close down, for fear of injuring the bark, which must be kept intact. When seasoned, the pieces may be cut to the required length, which in a jointed rod will be much a matter of taste, though from

two feet six inches to three feet is a good length. The sticks must be warmed over a slow fire, care being taken to keep them perfectly straight. After this they must be laid aside for two or three days, in such a position that they cannot warp, when they should be rubbed with a piece of flannel dipped in linseed oil, to remove the rough outer bark, and to impart a polish to them. This having been done, the several pieces should be bound tightly to a straight piece of wood, and then laid aside for another six months, after which time they will be ready for use.

In a jointed or ferruled rod the number of joints must depend upon the taste of the maker and the breadth of the water to be fished; brass ferrules give the best finish, and stout brass tubing, of all sizes and suitable for the purpose, may be bought for a trifle, and a hand-saw file will cut it into proper lengths. Some care will be necessary in making the pieces fit tightly into the ferrules, so that there may be no lateral motion in the joints; but there will be no difficulty in doing this if proper caution is used, and the wood, if seasoned as directed, will not shrink afterwards; the ferrules may be fixed to those pieces on which they are to remain stationary by driving a bradawl into them two or three times. A stronger rod is, however, to be made by means of fixed joints, without ferrules; for doing this the ends of the different shoots which touch each other should be very nicely matched for size. The two pieces should be cut across diagonally and spliced together with glue, which for such an operation should be carefully prepared; it should be soaked for several hours before using in cold water, and if it swells without dissolving, it is a sign that the glue is strong and good, and that it may be used. The proper proportions in which to mix it are a pint of water to a quarter of a pound of glue, and it should be boiled slowly, till perfectly even and free from lumps; a very small quantity only should be applied to the wood, and the two pieces should be rubbed together, so as to force out any superfluity; they should then be tied tightly together till the glue has set, and afterwards bound strongly with well-waxed thread. The rod may then be varnished with either of the following compositions:—Take half a pint of linseed-oil, boil it over a slow fire, and put in as much finely-scraped india-rubber as it will dissolve; strain it, and apply while warm: it will give a fine appearance to the bark, repel worms, and be very durable. Or, put half an ounce of shellac and half an ounce of seedlac in different bottles, with half a pint of spirits of wine to each; dissolve them in a sand-bath, shaking them frequently, and when that is done mix them in a larger bottle with half an ounce of gum benjamin; keep this hot till the dregs have subsided, and then apply three successive coats of it.

A rod for fly-fishing should not properly be made of hazel, because of the liability of that wood to shrink and warp when wetted. For this kind of rod American hickory is best, but very good rods may be made from our native woods; yew, elder, holly, and mountain ash have all been recommended, the former being probably the best. Common ash is a wood well adapted; and if not, on account of its weight, used for the whole rod, the stock may very well be made of it. A good tough ground ash may be known by the yellowness of its bark, and those are best which grow in stiff and moist soils. About two feet four inches is a good length for the joints of a fly-rod, and one which admits of carrying them in a pocket made for the purpose. A rod twelve feet long will throw a line of fourteen yards, but for using with a reel it is better to make a fourteen feet rod. The upper joint is better if made of shaved bamboo, and it should be spliced with a small piece of whalebone and waxed silk. A loop of horsehair—or, better, a fine brass ring—through which the line may run, should be fastened at the top.

A rod may be made generally useful by having rings fixed to the joints for a trolling-line to run through, and by having a trolling-top, provided with a piece of quill whipped to the end for the line to run over, which will frequently prevent its being cut; and also by having a number of tops for different kinds of fishing made to fit, some strong and firm, and others pliable and elastic. Fishing-rods should not be kept in a very dry place; and it will be well to rub them occasionally with a little sweet oil.

Making Lines.—For making hair fishing-lines the hair should be taken from the tail of a white horse, and those hairs are best which grow about the middle of the tail. They should be sorted singly, and the different sizes and qualities arranged in separate bundles. To prepare them, let them lie in clean spring water for twenty-four hours, and dry them either in a tolerably warm room (but not near the fire), or by placing them in bran. It will now be well still further to sort the hairs—to place them in hundreds with the roots evenly together, and to tie them at top, bottom, and middle, and keep them in a dry place. For use select such as are equal in size, that the strain may be uniform; and as the two or three inches nearest to the root are generally defective, they should be cut off. The line should be slowly twisted, and not too hard, or it will be weak. Make the first piece with three hairs, and so with the second, third, and fourth; then in the next four use four hairs; then five; and so on, increasing in size till enough links are made for the whole line. These links must be soaked in water for half an hour, and new ones must be made to supply the places of any which shrink. In fastening them together it is well to begin with the finest, and so to proceed gradually towards the thickest links; overlap the ends about four inches, and draw them through loops left for that purpose, cutting off the superfluous hair. From nine to twelve yards is a good length for a line, and a loop should be left at each end whipped with well-waxed silk. A line twisted by hand is much the strongest; and for trolling, a silk line plaited by hand should be used.

Silk lines may be preserved by soaking them about twice in a season in linseed oil, and then winding them round a frame or basket to dry. After fishing, they should always be wound off and dried before laying by; and when dry, they should be wrapped in wash-leather to exclude the air, which has a tendency to rot them.

Making Floats.—A cork float will be found preferable for heavy fishing—as with the worm or minnow, or where the current is strong. To make one, take a good sound cork, and bore a hole through its centre with a red-hot wire; this hole should be big enough to receive a quill. Taper the lower two-thirds of the cork and round off the upper third, so as to give it somewhat the shape of a peg-top. The barrel of a quill should be freed from pith and passed through the opening, and to each end of it a ring of fine brass wire should be fastened to receive the line—an arrangement which will be found preferable to a plain quill, since it will permit of the line being more heavily loaded. Small shot are better than large ones for leading, though more of them may be required; and the lowest should be placed about ten inches from the hook.

A quill float may be made by cutting off the barrel of the quill and clearing it from pith. A small piece of pitch must be fixed close to the end, and a piece of cotton must be introduced, fastened by more pitch; a plug of soft wood must be taken and shaped to the size of the quill, two inches in length, nearly one inch of which must be introduced into the quill, after having been coated with a cement made of equal quantities of beeswax, resin, and chalk applied hot; this cement resists water, and is therefore preferable to glue. The other end of the plug must be tapered, and a hole bored in its extremity with a small bradawl, into which a ring of fine brass wire with

a twisted shank must be screwed with pliers. This will form one loop for the line to pass through; the other will be made of larger quill, fixed about an inch from the opposite end. This hoop of quill, as well as that portion of the quill which surrounds the plug, should be bound round with fine waxed silk, and varnished to prevent splitting. Quill floats require leading just sufficiently to allow their tops to appear above water.

Fish-hooks are articles which it will be often necessary to buy; but in a subsequent paper we shall show how an ingenious amateur mechanic may make them for himself by the exercise of a little skill. In making fishhooks, the United Kingdom has long held the first place. The peculiar art of tempering steel for this purpose was discovered by Prince Rupert, by whom it was imparted to one Charles Kirby, and the secret long remained an heirloom in that person's family. Kirby hooks are even yet famous. Hooks made at Limerick have long enjoyed a high reputation, which they have not even yet lost; but at the present day the great seat of the fish-hook trade is Redditch, which may be said to supply the whole world.

In selecting hooks, those should be chosen which have long shanks, that are strong and deep in the bed, that have fine and straight points, and true to the level of the shanks. They should be sharp and well barbed; and hooks for flies should, to ensure neatness, have the shanks tapered off. A small handsaw-file is useful for jagging the barbs of hooks; and their points may, if blunt, be rubbed upon a whetstone. For attaching the hook to the line, nothing is found to be so strong or good as silkworm-gut. This material is brought almost wholly from Spain and Italy, and when good is exceedingly strong, and unaffected by water; but attempts have recently been made to improve and economise the manufacture by the use of chemical agents, the result of which has been to produce a kind of gut fine in appearance, but which soon becomes rotten; and the fact of such an article being in the market renders it necessary that the fisherman should purchase this material from those houses whose commercial position ensures their selling good and genuine gut only. For whipping on the hook the following are good directions:—"Hold it in the left hand, and whip the silk down to within four turns of the bend; take the shank between the forefinger and thumb of the left hand, and the end of the silk close to it; hold both tight, and leave the ends of the silk to hang down; then draw the other part of the silk into a large loop, and with the right hand, turning backwards, continue the whipping for four turns; draw the end of the silk which has hung down under the left thumb close, and cut it off."

The above constitute the more important articles of fishing-tackle; the other matters necessary to the fisherman are—a landing-net, which he can himself make (we have, in a previous number of the HOUSEHOLD GUIDE, given directions for making netting); it will be necessary to have an iron hoop made, about fifteen inches in diameter, with a shank to receive a wooden handle to which to attach the network; a wicker creel, which should be long enough to let the fish lie flat; a disgorging, which should be made of a piece of split cane six inches long and a quarter or an inch wide, with a notch at each end, to press down the throat of the fish when he has swallowed the hook; some small tin boxes, with holes pierced through the lids, for living fly-baits; for worms and gentles a bag with damp moss in the bottom is best; and also a pocket-book for carrying spare hooks, gut, split shots, &c.

For ground-fishing, worms and gentles make excellent bait. A good bait may be made by kneading bread-crumbs into a paste (with clean hands), and adding to it a little red colouring matter. Brewers' grains are a very favourite bait for roach, and soft yellow cheese for chub.

HOUSEHOLD DECORATIVE ART.—L.

PAPIER-MÂCHÉ WORK:—PEARL INLAYING—(continued
from p. 50).

AFTER rubbing down with the block of pumice-stone, it will be found that a number of scratches have been left on the surface of the papier-mâché; these will have to be removed by polishing the work with a rubber consisting of a piece of linen or wash-leather, dipped in what is technically known as "sand," but which is in reality finely-powdered pumice-stone. This will leave a surface generally smooth, but, owing to the grain of the sand, the varnish will have assumed a greyish colour, which will have to be removed, and the surface restored to its original blackness, by polishing with a rubber dipped in rotten-stone, thoroughly softened by soaking in water. This will leave a tolerably good polish, and a perfectly brilliant one is afterwards attained by rubbing with the palm of the hand and a little dry rotten-stone. All these processes are, as the reader will observe, purely mechanical, and the amateur inlayer will do well to leave them to be carried out by the professed japanner.

The article will now be ready for "touching-up." It will frequently be found that, in pumicing, some of the flakes and shapes have been worn through, or that a hole may, owing to the pearl not being perfectly flat, have been broken in it. Such holes must be filled up with "raising colour," which consists merely of whiting mixed up with gold-size into a kind of putty, and this is to be pressed into the holes with the point of a palette knife. It should be laid on thickly, as it will shrink a little in drying, which must be done in a stove. When perfectly dry, the surface of the raising colour must be neatly and carefully pumiced down to the level of the pearl.

The holes (if there are any) having been filled up in this manner, the next proceeding will be to restore any defective pearl with a greyish-purple colour composed of ultramarine, lake, or carmine, and a little black, mixed up with a large proportion of flake-white; the object in view being to get a colour approaching as nearly as possible to the general appearance of the pearl. This is the most expeditious, and is therefore the usual method of repairing; but where time is no object, we should prefer giving the defective place in the pearl also a thin coat of copal varnish, and then dusting in with a dry camel-hair pencil "white" or silver bronze-powder—which in brilliancy more nearly approaches the pearl than does any other material. If the piece of pearl has been hopelessly ruined in the pumicing, it may be replaced by letting in a new piece; the old one must be removed with a knife, and the new will simply require to be fixed in its place with a little paste. When dry, the crack round its edge should be filled up with raising colour, to preserve

the paste from being softened by the water employed in pumicing, and the new piece of pearl rubbed down with the pumice-stone to the level of the rest of the work.

If it be found that a pearl shape has slipped a little out of its proper place, the amateur need be under no apprehension that this will spoil the effect of his work, for it can be so repaired as only to be noticed by the practised eye, by painting-in to the original outline of the shape (as indicated by comparing the two sides of Fig. 2), on that side from which it has slipped, with grey colour, as at B, and obliterating the superfluous pearl upon the other side (A) with the black paint, of which we shall speak more fully hereafter.

In purely geometrical designs, like those given, no further decorative touching-up will be required, beyond connecting the shapes by means of a neat dot of grey colour between each. The whole, or parts of the pearl, may indeed be coloured, or the background of black varnish may be heightened by gilded ornaments; but, even without these accessories, the simple pearl and black will be found to have a very good effect.

More Elaborate Pearl Inlaying.—



Fig. 2.

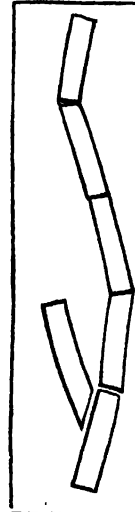


Fig. 3.



Fig. 4.

The above constitutes the most simple kind of pearl inlaying only, unless we consider as such the system of inlaying the whole surface of the article with squares or diamonds of pearl, closely fitting into each other, which has recently been very fashionable. This, though in-

artistic, is pretty in effect, but we can scarcely recommend it to the amateur, since the fitting together of such quarries requires great nicety of workmanship, which can scarcely be attained without constant practice. We should rather recommend flowers and ornamental patterns for his execution.

Of inlaying a flower in pearl, the pansy given in Fig. 1 may form a

sufficiently good example. We should recommend that the blossoms marked A and B, and the leaves C, should each be cut out of a single piece of snail pearl; before cutting, it will be well to turn the flake of pearl round that the light may fall upon it from various directions, and that the best effect of prismatic colour may thus be obtained. Where the leaf is deeply serrated as at E, it will be better that it should be cut from two or more pieces of pearl, which can afterwards be connected, in the process of touching-up, with grey colour, as before directed. To form the stem of this flower, it will be necessary to cut small strips of pearl (as shown in the enlargement of stem at Fig. 3), somewhat wider than the actual breadth of the stem, and in pieces of about half an inch long, or of rather more or less, according as the line of the stem is more gradually or abruptly curved; the joinings of these strips will afterwards have to be concealed by the application of grey colour, and the superfluous pearl at their sides will have to be painted out with black. With this latter paint the outlines of the petals, the fibres of the leaves, and, in short, all the necessary "pencilling"

may be done. To this black we have before alluded : the pigment used in making it is known in the trade and sold as "best" black, which should be ground in turpentine, and afterwards mixed with copal varnish ; but of the preparation of colours we shall speak more fully in another place. In using this black paint, it is advised that it should as far as possible be kept strictly to the pearl-work which it is desired to conceal or correct, and not allowed to spread over the adjacent black ground ; for it is far from being of so deep

or rich a colour as the latter, and will consequently be perceived if it overlaps it, when the work is examined in a good light by a practised eye. In the arrangement of the pieces of pearl in a flower or other design, considerable additional beauty of effect may be gained by using various kinds of pearl for different parts of the work, according as the taste or fancy of the amateur may dictate. Fig. 1 may be used as the centre of a lady's card-case, to which the design given in Fig. 4 may form a suitable border. This border we give as an example of a method of getting an apparently exceedingly intricate pattern with little trouble in the following manner :—A broad strip of pearl should be cut, of about half an inch in width, which will have been inlaid in the manner already described. The pattern to be used must be drawn upon paper, and holes pricked through the outline, as before directed—whiting or vermilion must then be rubbed through, leaving the pattern on the pearl in white or red dots. Then the outline must be gone over with a blacklead pencil, and the dry colour brushed away : the spaces between the lines can afterwards be filled in with black paint, hiding the unnecessary portions of the pearl and leaving the other parts exposed.

The pieces of pearl used in these last examples may be cut out with the scissors or "saw-knife," but before doing so, to lessen the liability of the flakes to break in cutting, it will be well to soak them in water for a short time. We have now to speak of the management of these more intricate patterns, which will require the pieces used for inlaying them to be cut out with the bow-saw, in a similar manner to that described in an earlier number of the *HOUSEHOLD GUIDE* (see page 84, vol. ii.), in our article on "Fretwork and Carving in Wood."

The design given in Fig. 5 is a portion of a running border, which might serve for various purposes, as for the

pilaster of a chiffonier. As the ornamental fronds and other portions of this cannot be well cut with the scissors, and are not to be bought ready-stamped, saw-piercing will have to be resorted to; and as these forms frequently repeat in the course of the design, it will be found both more easy and more expeditious to cut several of them at once. Four or five flakes of the required size may be glued together, the pattern traced on the upper flake, and the whole sawn through at one operation ; after they are cut out, boiling for a few minutes will dissolve the glue and separate the pieces.

Animals, and indeed all intricate forms, should be cut out in this manner ; sometimes where a single form only is required, and it is desired that it should be very nicely cut, the pearl is laid on a sheet of thin copper, to give it additional strength, and the two sawn through as before.

Pearl inlaying is best adapted to flat, or nearly flat, surfaces. When applied to rounded objects, the pearl can only be used in very small pieces, and the pattern must be chosen accordingly.

Ornamentation of Papier-mâché by Painting and Gilding.—For painting upon inlaid pearl transparent colours only are used, that the prismatic beauty of the flakes beneath may shine through and not lose its effect. The pigments most suitable for the purpose are—for reds, lake and carmine ; for yellow, Italian yellow ; for blues, ultramarine and Prussian blue ; for a cold green, verdigris ; and a range of warm greens may be made by adding more or less Italian yellow to verdigris ; for brown, burnt sienna, which may be darkened with a small quantity of "best" black, for the deeper

shades ; and for purple, a mixture of the above-mentioned blues and reds. These colours must be ground in a little turpentine, and mixed with about an equal quantity of copal varnish. This makes a far lighter and more delicate kind of paint than one mixed with oil ; it has also the advantage of drying more quickly. All colours used for painting papier-mâché may be prepared in the same manner. Colours may be lightened by adding to them more varnish and turpentine, and they may be deepened for shading with a little black, though in most instances it will be found best to gain depth by laying an additional coat of colour over those parts of the work which may require it ; in many cases a mixture of black and carmine will be found to form a good shade. Camel-hair pencils should be used for laying on the



Fig. 5.

colours, but as the varnish in them quickly dries, it will, if not washed out, harden and spoil their points; they must, therefore, after use, be always carefully cleaned with turpentine. Sable pencils are equally suitable, but are more expensive than camel-hair. The pansy, of which we gave a design and described the method of inlaying in our last article, may with these colours be finished in its natural tints, which the lustre of the pearl beneath will render exceedingly brilliant and beautiful. They may, indeed, be applied to almost any description of inlaid device. Statuary has a particularly fine effect in pearl shaded with purple; buildings and ruins tell exceedingly well, as do also many kinds of natural objects, and more especially birds and butterflies, but perhaps some of the most effective subjects that can be represented are stained glass windows in the interiors of cathedrals, which have a very fine effect when carefully painted upon pearl.

THE SICK-ROOM AND NURSE.—II.

COOKERY FOR THE SICK.

WHEN it is considered that to repair waste and restore strength weakened by disease is the main effort of the healing art, it is evident that a supply of nutritious food, properly cooked, is of equal, if not in many cases greater urgency, than the administering of medicine. Medical men are fully conscious of this fact, and most doctors take as much pains to order a patient's dinner as to write a prescription. Medicine, they are aware, will not of itself effect a cure. The constitution of a sufferer, during illness, requires the support which comes from natural means. Proper nourishment may be, at one and the same time, food and physic.

Accepting the above facts, it follows that some acquaintance with the various properties of food is an indispensable acquirement on the part of a good nurse. If to this knowledge be added the ability to cook the meals ordered, an immense advantage is obtained, simply because by unscientific cookery waste of nourishment is almost inevitable. Lamentable as waste is at all times, life or death may depend on the economical preparation of a meal. Precious lives at times hang on this vexed question of food—vexed, because so many excellent and self-denying women in aught else, either cannot or will not undertake to become cooks as well as nurses. Willing in numberless instances to undertake the most repulsive and painful duties connected with attendance on a sick bed, one of the chief works—cooking—either from distaste or ignorance, is constantly overlooked. The only case, however, where practical cookery can be dispensed with in a nurse is when a household is fortunate enough to include amongst its members an intelligent ally in the kitchen—not too self-opinionated to dispute the doctor's orders, but anxious to carry them out to the letter.

Very small quantities of food are generally taken in critical stages of disease, and most of the cookery required may be done in a apartment adjoining the sick room, or sufficiently removed not to be a disturbance. What is most needed in the dietary of the sick is *general nourishment*—i.e., that description of food which embodies the various properties required for the sustenance of the human frame; not “flesh-forming,” “heat-giving,” “bone-making” substances singly, but a class of nourishment in which the above are all more or less combined.

First amongst representative foods stands milk. Milk is essentially Nature's food, and no nurse need despair of her patient being well nourished, so long as milk is a welcome beverage. Whenever thirst—as in a fever—is insatiable, and food repugnant, milk may form a most valuable source of nourishment. In some cases, chiefly to be determined by the age of the patient, a certain quantity of water may be added to pure milk. The latter

precaution, however, is seldom necessary in towns where, under the name of genuine milk and cream, rather inferior kinds of the liquid are often sold. Neither does it follow that, because pure milk is good, cream must be better. Except in very rare cases, the separation of one element of food from another is of doubtful benefit. That which makes milk a representative food is its entirety, therefore cream and whey in a separate form do not answer the purpose designed of milk in a pure state, especially whenever sick children are concerned; and scarcely less can be said of adult patients.

Another article of diet in constant demand in the sick room is beef-tea. Properly prepared, beef-tea is the highest form of nourishment that can be administered in critical stages of numerous diseases; but its good effects are liable to be lost, by want of knowledge in the cooking. There are many ways of making beef-tea; the best and most simple, however, is the following:—Take half a pound of beef free from fat, bruise it with a steak-mallet or rolling-pin until the meat is thoroughly crushed; soak the meat in the proportion of half a pound of beef to half a pint of cold water. When the meat has been in the water about an hour, or less time, if necessary, throw it into a clean stewpan, and let it just boil up. All the juices of the meat will thus be extracted, without any waste by evaporation. The beef-tea should then be strained from the meat and set aside, to let the fat settle on the top. A larger quantity of beef-tea may of course be made in the same manner. The meat should not be thrown away without being again stewed for a considerable time, in order to extract its utmost value. For this purpose the beef should be covered with water and placed in an earthenware jar, which should be set by the side of the fire in a saucepan containing water. An inverted saucer should be placed on the top of the jar, to prevent the steam from getting in. After having simmered for several hours, the liquor should be strained, set aside, cleared of fat, and afterwards used instead of plain water to make any beef-tea required. The latter preparation is called beef-stock.

The ordinary mode of making beef-tea by simply boiling a certain quantity of meat for an indefinite time in a saucepan, is the worst plan imaginable. The liquor thus prepared is not only unpalatable, but wanting in essential points of nourishment, all the volatile and valuable properties of the meat having been wasted by evaporation. As a rule, whenever a nurse smells the savoury odour of her patient's meal whilst cooking, she may depend that there is a waste of nourishment, and she should endeavour to stop the waste, by withdrawing the joint a little distance from the fire, closing saucepan-lids, &c.

A mutton chop is one of those little delicacies which, if well cooked, gratifies the appetite of an invalid. In order to cook a chop properly a large fire is by no means necessary. An ordinary parlour-grate and a handful of bright fire are more than enough for the work. The chop should be well beaten with a steak-mallet, and closely trimmed from fat; it should then be placed on a gridiron on the top of the fire, and kept constantly turned for about twelve minutes, by which time the meat should be well browned and not burned. In turning the chop the fork should not be put into the prime but into the fat end. Steak tongs are the best to use for broiling chops and steaks, and in their absence perhaps a hanging gridiron is the best substitute, as the meat can then be turned without loss of gravy. Fried chops are by no means fit for invalids.

A stewed mutton chop, if very carefully prepared, is an excellent and nourishing meal. The meat should be stewed the day previously, in the following way:—Choose a prime middle-loin chop; place it in a small enamelled stew-pan with sufficient water or beef-stock, a shred of onion and carrot, four peppercorns, and a pinch of pepper

and salt. Let the chop simmer very gently until tender ; then remove it from the gravy, and set the latter aside to get perfectly cold. Remove the fat that has settled on the top, and before serving thicken the gravy with about a dessert-spoonful of rice.

A fried sole is sometimes ordered for an invalid. To be digestible and palatable, the fish must be carefully cooked in the following way:—Some hours before it is wanted, the sole should be well washed, wiped, and afterwards rolled in a clean white cloth, in order that all the moisture may be absorbed. Have ready a well-beaten egg, and some finely-grated bread-crumbs ; lay the egg on the sole with a paste-brush, then dip the fish into the bread-crumbs, shaking off all the loose crumbs. When both sides of the fish are evenly covered with crumbs, place it carefully into a frying-pan containing sufficient hot lard to cover the fish. To tell whether the lard is hot enough, dip into it a small piece of crumb of bread. If the bread is instantly browned, the fat will do. Immediately after placing the sole in the pan, raise the fish by placing the fish-slice underneath it for a few seconds ; this will prevent the sole from sticking to the pan and burning. When sufficiently brown on one side, turn the fish. About ten minutes will generally suffice to fry a moderate-sized sole. Before dishing up, all fried fish should be placed in front of the fire on a soft clean cloth to dry, and allow the greasy moisture to be absorbed. This process will take about ten minutes. Melted butter is not a desirable addition to fried fish for invalids. A large sole filleted is more nutritious than a whole small one. The fishmonger, if asked, will remove the flesh of the sole in fillets. The fillets may either be fried plain or rolled ; the latter plan is best, but requires a little longer for frying, and a good deal more lard in the pan.

Boiled soles form an extremely light repast, but are not very nourishing. It is better to stew the fish lightly in a little beef-tea or meat gravy.

Poultry, roast or boiled, is essentially the food of invalids. If roasted, a fowl should be kept incessantly basted to prevent its becoming dry. It is a good plan for the first half-hour to baste poultry with salt and water, afterwards remove the mixture from the pan, and proceed in the ordinary manner, using plenty of lard. When it is not convenient to cook a whole fowl, a portion only may be stewed or fried at a time, thus making several meals instead of one, off the same bird. The pinion and breast are the best portions for stewing, and the leg and thigh for frying and boiling. Whenever stewed poultry is ordered for invalids, the skin should be previously removed, that portion being tough, greasy, and indigestible to weak stomachs.

A slice from a hot joint of meat is the best repast, when a patient is sufficiently recovered to partake of strong animal nourishment. The joint should be sent to table on a hot dry dish, without any gravy from the dripping-pan. Only the juice that flows from the meat should be sent to the invalid. If there should be more gravy than is required for one meal, the remainder should be set aside for the next day. A slice of the meat *cut whilst hot*, and covered at the same time with the gravy from the joint, should be reserved. When wanted, the meat and gravy should be warmed, not boiled, by being placed in a basin over a saucepan of boiling water. Just when the gravy begins to simmer the meat will be ready to serve.

Eggs, if new-laid, are very valuable nourishment for the sick. Stale eggs are not so. Fresh eggs are said to represent the value, in point of nutrition, of one ounce and a half of meat and one ounce of good bread. Eggs are not suited to weak digestions, if boiled or fried. They are best coddled, *i.e.*, placed in boiling water until the white is "set," and the yolk semi-fluid. The most simple mode of coddling an egg is to make a pudding-basin hot and afterwards fill it with boiling water, in which the

egg should be placed, with a saucer or small plate on the top. If the basin be placed near the fire, the egg will be coddled in eight minutes. If it is summer the fire may be dispensed with. If there is any doubt about the freshness of eggs, they should be held to the light, or before a candle. If they appear transparent, they are fresh ; if dull-looking or clouded, they are stale.

Before quitting the subject of animal nourishment, it is advisable to refute the popular belief that *jelly* is nourishing. A human being would starve on the most pure jelly that ever was moulded. Jelly, or gelatine, is at best but the result of a long process of evaporation, during which the volatile, or more valuable parts of the substance submitted to heat are thrown off. As a vehicle for other descriptions of food, jelly, from its tempting appearance, is often acceptable, when more solid viands would be rejected. Jellies in which meat gravies, sugar, wine, and brandy form part, answer their purpose well enough ; but no dependence should be placed on the nourishing qualities of jellies apart from the above additions.

Jellies made from farinaceous articles of food are very acceptable in illness. Sago, tapioca, and rice jelly are the most commonly used. These may be flavoured with lemon-peel, sugar, and nutmeg, according to taste.

Amongst beverages, in those cases where ardent thirst prevails, plain toast and water is the most simple and generally acceptable. Thin slices of bread should be well toasted or browned in a slow oven, not blackened or burnt. The toast should be placed in a jug, and covered with as much boiling water as is desired. When cold, the infusion should be strained from the bread. Barley-water is also a favourite beverage ; to make it, add one quart of boiling water to about three ounces of fine pearl-barley ; the peel of one-third of a lemon, cut very thin ; and sugar to taste. Sliced figs, liquorice-root, and raisins are sometimes added. If it is desired to make the barley-water rather thick, the above ingredients should be boiled for a short time.

Drinks made of fresh or preserved fruit are sometimes useful in fevers. Rhubarb tea is a very simple and refreshing spring beverage. Slice about two pounds of rhubarb, and boil for a quarter of an hour in a quart of water ; strain the liquor into a jug, adding a small quantity of lemon-peel, and some sugar to taste. When cold it is fit for use. Apple-water may be made in the same manner. The apples should be previously peeled and cored. Sugar should not be added to either of the above until after the liquor is removed from the fire. In the absence of fresh fruits, a pleasant beverage may be prepared by stirring sufficient raspberry jam or currant jelly into the required quantity of water, straining the liquor before offering it to the patient.

Whatever food it may be necessary to give to an invalid should be prepared without reference to the hours when the rest of the household take their meals. The doctor prescribes in most cases the time that should elapse between taking nourishment, and his directions should be observed faithfully. It is rarely considered necessary to rouse a patient from sleep to take food, sleep being a sovereign restorative in itself. A great assistance to the doctor's judgment in the treatment of a patient consists in the nurse keeping memoranda of all the changes that occur in her patient in the doctor's absence. If inexperienced, she should make notes of the hours at which food and medicine are taken, remarking on any appearances that may have followed.

WASH FOR CLEANING THE HAIR.—Dissolve at a gentle heat four ounces of marine soap in five ounces of rectified spirit of wine. When solution has been effected, filter the liquid, and add one ounce of rose-water, or orange-flower water.

THE HOUSEHOLD MECHANIC.—LII.

BRICKLAYING.

IN this country the majority of our domestic buildings are composed of brick-work, as far as the walls are concerned; while in many parts of England the floors are paved with the same useful substitute for stone. Good brickwork is as durable as ordinary stone masonry, especially if carefully put together; and, as a general rule, it is much cheaper. But even in a building the outer walls of which are of stone there are many parts which must be constructed of brickwork; and as these sometimes fall out of repair, or even want entire renewal, we cannot do better than, in this paper, offer such instructions to the household mechanic as will enable him to effect repairs where necessary, or even to entirely reconstruct various kinds of brickwork.

Before passing to the actual work, however, we must first offer a few hints upon the materials used, and their proper application to various situations and purposes; as attention to these particulars will not only ensure a better appearance in the work, but will greatly enhance its durability. There are many varieties of bricks of differing qualities. Some are hard and some soft; while others are prepared for special purposes, such, for instance, as fire-bricks, which are used in the construction of furnaces, on account of the resistance which they offer to the destructive influences of heat. Other kinds are of a more or less ornamental character, either on account of their colour or form; but the two most important kinds for ordinary domestic work, such as is likely to be undertaken by the tyro, are called "stocks" and "place" bricks respectively. Of these the first-named are the hardest and most suitable for out-door work or for any damp situation, on account of their vitreous and non-absorbent character; while the latter are well adapted for the interior walls of the house, or for any place where they will not be exposed either to much wear or to damp. Stocks are dearer than place bricks, which can generally be purchased at from thirty to forty shillings per thousand, while the price of good, hard, and serviceable stocks varies from forty to sixty shillings for the same number. Of course these prices vary considerably, according to the facilities which exist for carriage and the distance from the brickfield in which they are made; and they are only approximately given as a rough guide to the intending purchaser. As a rule good stock bricks will answer for all out-door work, in the shape of walls and paving, and will be found the most useful for ordinary household work.

For general purposes, bricks are mostly laid in a cement

made of lime and sand; and although in special cases both Roman and Portland cements are used, good ordinary mortar will be found sufficiently durable, while it is much cheaper and more easily worked. A mortar of good quality may be made by mixing one part of freshly-burned lime with three parts of sharp sand, which latter ingredient must be well sifted through a coarse sieve, to remove the stones. Water must be added to reduce the mass to a kind of thick paste just firm enough to be conveniently manipulated with the trowel. Unlike many other cements, mortar does not set very rapidly, and may consequently be worked up and used some few days in succession without any material injury to its quality of durability. Although it is necessary to use a good proportion of lime, nothing is gained by using too much, and as the hardening properties of mortar depend upon the peculiar action which takes place between the lime and the sand, a mortar made of all lime would neither become so hard, nor would it be nearly so durable as when duly mixed with the proper quantity of sand.

It must not, however, be supposed that a sample of mortar which has been mixed for a very long period will eventually become as hard as one which has been recently made up; and, therefore, when required for very strong work, or that much exposed to the weather, it should not be mixed more than a week at most before use. The best kind of lime for mortar is

that known as stone lime, or, as it is sometimes called, Dorking lime. Chalk lime is unsuitable, on account of the stones which it contains, which would be a constant source of annoyance if mixed with mortar.

With these remarks upon the materials necessary, we may pass to the consideration of the tools required. These need not be many or expensive. The first will of course be a trowel, which may be bought for three or four shillings. It is always better to buy a good trowel at first, as an inferior one will perhaps be too soft

to resist the hard brick used, and will turn up at the edge when used for cutting, or will be so hard as to break during use. A pair of bricklayers' line-pins and a chalk-line will also be required, and a plumb-bob, which latter is simply an egg-shaped piece of lead supported by a string. All these articles may be purchased for something less than five shillings at any tool-

maker's. The two other necessary implements are a plumb-rule and a level. The plumb-rule is simply a parallel board with a line drawn exactly down its centre longitudinally, and having a hole cut near its bottom end, through which the suspended plumb-bob may freely work. Its mode of application to brickwork is shown in Fig. 1. When two or three courses of bricks are laid, the plumb-rule is applied, as shown in the figure,

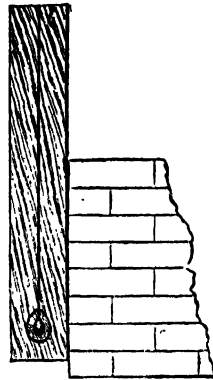


Fig. 1.

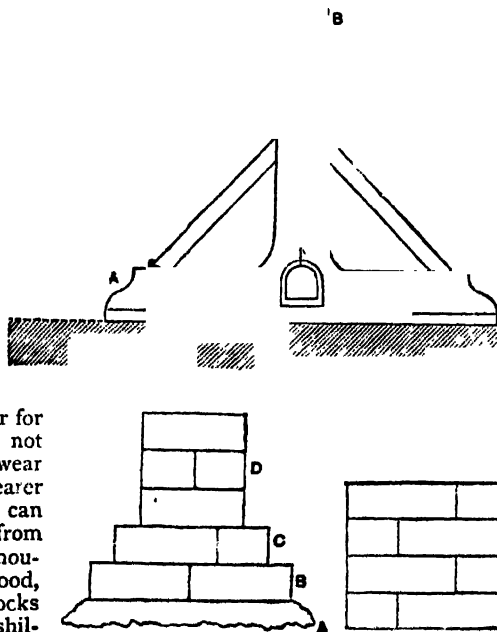


Fig. 3.

Fig. 4.

and when the line which holds the bob and that gauged upon the rule are perfectly coincident, the work is of course upright. The ordinary level is shown in Fig. 2, and consists of a stout board A, of the required length, which should be quite straight upon its bottom edge. Into the top edge of this is strongly morticed a piece of wood, B, which should stand at right angles with it. This upright piece should be marked down its centre exactly as in the plumb-rule before described, and a hole must also be cut to allow the bob to work freely. Fig. 2 explains the method of using a level of this description, and when thus applied to the brickwork in hand the bob-line and the gauged mark should coincide exactly, as in the case of the plumb-rule. When a long piece of brickwork has to be made, it is usual to turn the level end for end, as each length of the lower bar is reached; this will correct any slight inaccuracy of the instrument. If the tyro possesses a spirit-level, all that will be required is a long parallel bar upon which it may be placed, and the level may then be determined by the central position of the air-bubble in the glass tube.

Provided with these tools, we will suppose the amateur

to mix some very thin mortar, called "grouting," which may be poured in so as to unite the whole into a firm mass. Although these lower courses are not seen, it is requisite that they should be laid quite straight and evenly. Two or three bricks should, therefore, be first laid at each end of the work, and the line tightly stretched between these two points. To this line all the intervening bricks should be laid, and will determine not only the width, but the elevation of each course of bricks laid upon the wall, and must be strictly followed in both particulars.

In constructing the two lower courses shown in Fig. 3, the arrangement of the bricks shown in the figure may be strictly adhered to, as may also the first course of the wall itself—that is to say, the lowest layer may consist of two rows of bricks laid end to end, the next of one laid endwise and one lengthwise, while the third or first course of the actual wall should be of one brick laid quite across the thickness of the work. Thus far no particular attention need be paid to what is called the bond of the work, except that it is advisable not to place the joints one over the other; but from this point the bricks must be

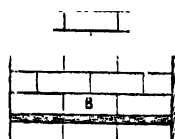


Fig. 8.

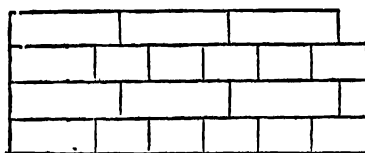


Fig. 6.

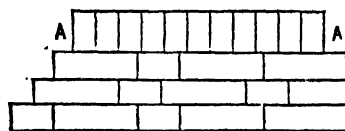


Fig. 7.

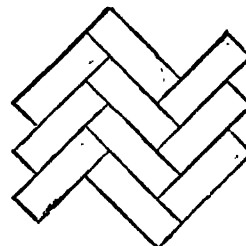


Fig. 9.

about to commence a piece of ordinary straight brickwork, such as is generally used for garden walls. The first thing will be to dig a trench of the required depth to hide the footings, and ensure a good and firm foundation. If the ground be loose it will be best to commence by laying a bed of concrete, made of gravel-stones and lime, of some inches in depth, and sufficiently wide to receive the brickwork. In either case the surface must be perfectly level; and if concrete be used, a day or two should elapse before the brickwork is placed upon it, in order to allow of its becoming quite firm and hard.

The thickness of the wall must now be determined, whether it is to be one, two, or three bricks thick. This thickness is not calculated by the length of the brick, but by its breadth; and as most ordinary bricks are about nine inches long and four and a quarter inches in width, a wall of one brick will be four and a quarter inches, one of two bricks nine inches (that is, the length of a brick), and one of three bricks about fourteen inches thick, as the bricks are not placed in actual contact, but have an intervening layer of mortar between them. These thicknesses are shown in Figs. 3, 4, and 5, in which Fig. 5 is a thickness of eighteen inches, Fig. 4 of fourteen, and Fig. 3 of nine-inch brickwork. It is not usual to commence the wall of the regular thickness at once, and directly upon the concrete or other foundation, but to lay a course of double the thickness of the intended wall, upon which the other part of the work is to rest, in order to distribute the weight over as large a surface as possible. The mode of effecting this is shown in Fig. 3, in which A is the concrete or other foundation, B is a course of eighteen-inch brickwork, C one of fourteen inches, and D the nine-inch wall. The first course upon the concrete is laid dry—that is to say, without mortar—but it is usual

laid in regular and predetermined order, that the work may be properly bonded together, and present a uniform appearance. The object which is aimed at in bonding brickwork is removing the joints between the bricks to as great a distance as possible from each other, in order that the work may be firmly wrought together.

There are two kinds of bond in common use, which are known as English and Flemish bonds respectively. Of these the first is shown in Fig. 6, and it is produced by laying the courses or layers of bricks alternately lengthwise and endwise. The second is produced by laying one brick endwise, or across the work, and one lengthwise, or along the length of the wall, as indicated in Fig. 7. Of these two plans of bonding, the last-mentioned is most frequently used, although there is little or no difference in their relative strength, if properly executed, and in many instances, where perfect uniformity is not required, both kinds of work are united in the same wall. Where neatness and perfect bonding are required, it is better to set out the bond by arranging a course of bricks dry along the wall, to see how they will fit into the required length, and when this order has been once determined, it should be adhered to throughout the whole of the work. Beside this setting out of the length, it is a good plan to determine the thickness of each course by marking it upon a wooden rod, and it should be remembered that one important quality of good brickwork is the thinness of the joint of mortar. The next proceeding will be the erection of the quoins or angles of the work wherever required, and the greatest care must be exercised in getting these perfectly upright, as it is from these points that the body of the work is arranged. The method of erecting a quoin is shown in Fig. 1, and both the end and face of the wall must be regulated by the plumb-rule.

When the quoins are carefully erected, a line should be tightly stretched from point to point by means of the line-pins before-mentioned. The line must be raised course by course as the work proceeds, and whenever it is more than one brick in thickness, should be used on both sides of the wall. It is somewhat difficult to describe the actual manipulations of the bricklayer's art, and more can be learned by a few minutes' actual inspection of such work than could be taught in many pages of mere description. The mortar is taken upon the trowel in a tolerably long roll, and laid upon the edge of the brickwork. Generally, in order to effect a saving of time, several feet of the work is thus prepared before any bricks are actually laid. The mortar is then spread with the point of the trowel to something like the required thickness, but always rather more than less. If any be spread over the edge of the wall, it should be removed with the trowel. The bed of mortar being thus prepared, a brick should be taken in the left hand, placed in position as near the line as possible, and tapped down with the trowel into its exact position. During this process some mortar will be driven from the joint, which must of course be removed.

When some six or more bricks have thus been laid, the joints must be smoothed or "struck," as it is technically termed, an operation which is performed by drawing the edge of the trowel over the half soft mortar. In thus striking the joint, care should be taken to completely fill up all the parts between the bricks, and where these are defective a little fine mortar should be taken upon the point of the trowel and carefully placed in the required position. Where the work is more than two bricks thick, it is usual to use a little mortar made very soft with water, which may be poured into the interstices on the top of the wall as it proceeds, but this need not be done more frequently than every four or five courses. In the manner thus described the wall is built until the required height is obtained, when, if it is to receive a roof or timber frame of any description, the plate may be bedded in mortar in its proper position. If, however, the wall be merely intended as one used to mark a boundary, as a garden wall, or if it will be exposed to the action of the weather, the best plan will be to lay a course of bricks on edge along its entire length, as shown at A A in Fig. 7. When the work is required to be of a very durable character, this finishing course is frequently laid in Portland or Roman cement, but as a rule, good and freshly-made mortar will answer every purpose. In the case of brickwork which has to be afterwards covered with plastering or cement, striking or smoothing the joints will be unnecessary; in fact, the rougher such work is the better, as the irregularities will afford a greater hold to the outer coating.

Besides the kinds of work we have already described, there are others which are applied to internal purposes in the house, such as that known as "brick-nogging," shown in Fig. 8, and herring-boning, Fig. 9, which latter is principally used in paving; but of these and of various other matters we must treat in our next paper.

TO FORETELL THE WEATHER.—Much information as to the state of the weather on the following day may be gained from the appearance of the sky at sunset. When the sky has a rosy appearance it indicates fine weather; but if there should be a halo round the moon it shows that the weather will be wet. If the sky is red in the morning it portends a wet day. When inky-coloured clouds are floating in the sky, they show that rain is at hand. If either wisps, or streaks of cloud, or light scudding clouds, are present in the sky, both rain and wind are indicated. When the barometer rises, and the thermometer falls, the weather will be dry; but if the barometer falls, and the thermometer rises, rain may be looked for.

THE HORSE.—XIV.

RIDING AND DRIVING (continued from "A" 75).

IN our last article we had our pupil—for such we must consider the reader who goes by our instructions—mounted in the proper position on his horse (that is, sitting upright, the legs falling naturally, with just their weight and nothing more supported in the stirrups)—for that we hold to be the proper position of a man on horseback—the feet well home in the irons, and the novice able to ride round the school or yard, or even on the roads, with a careful instructor by his side—so far so good. The ground-work is laid, and we will now endeavour, that is, if we can, to raise the superstructure. We intended to discourse of the seat and hand at different times; but find that one is so totally dependent on the other, that it is best to combine them, as far as possible, and leave any extra remarks, in regard to the science of handling a horse, to be considered when we come to the saddle-room and the various bits it contains.

Before proceeding to the trot, we must caution our readers that it is well to continue a foot-pace for some time, practising turning round both to the right and the left ere venturing on a quicker pace, as well as in some measure endeavouring to *ride the horse*—that is to say, making him go well up to the bit, and answer the motion and wish of his rider promptly, instead of lopping along as if he had a mere sack of rubbish on his back. To do this, shorten the rein in each hand, so as to feel his mouth gently, not pulling at it, but so as to be able instantly to check any attempt at breaking into the trot. This done, touch him smartly with the heels, at the same time slightly tightening the hold on his head. The effect will be to bring his chin in towards his chest, quicken his step, and throw his hind legs under him. When he thus recognises the rider's will, again drop your hand to him, at the same time retaining that delicate touch on the mouth, that lets him know you are still riding him. This it is impossible to explain on paper, and even old Sam Chifney's maxim, "that you should hold a horse as if the rein were a silken thread you feared to break," scarcely realises the meaning of it. Perhaps, to say that it resembles more nearly the all but imperceptible pressure of the loving or friendly hand, which conveys so much, would be nearer the mark. When you have your horse in this form, he will not only be less likely to stumble, move away from any passing vehicle, and turn more readily under you, but tire you less, and go more pleasantly, than if ridden either with a tight or a very slack rein. The mastery of all this, we repeat, should be taught in the walk. That done, start in a steady trot; the first ten yards will cause our novice to raise his hands towards his nose, and throw his body forwards. Neither eccentricity must be allowed; he should keep his person as upright as possible, without stiffness, pliantly erect, ready to move with each motion of the horse, and his hands down. No man can ride with his hands held high, he loses all power. "Keep your hands down, your elbows in, and your thumbs up," we once heard that celebrated jockey, the late Sam Rogers, say to an amateur, whose horse was inclined to play tricks with him, as they were going out of the saddling-paddock towards the starting-post. By following these rules you gain the maximum of power with the minimum of exertion.

We cannot do better than here tell our pupil how to hold his bridle. Supposing him to ride with a single rein, if he takes the end in his right hand, and places the second finger of his left between the reins, or, if he prefers it, the two middle fingers, he can then run the left hand down to the proper length, and by turning the reins over his forefinger and closing the thumb on them, he will be holding them properly for riding with one hand only. This, however, he will find, in many instances insufficient. On such occasions let him take the off or right rein in his

right hand, below his left, draw it an inch or two longer than the other, and place it in exactly a corresponding position in his right hand to that which the other occupies in his left, the left thumb still holding both reins as before. He will then take the ends which hang beyond the left thumb, and place them under the right and on the rein which passes over the right forefinger, keeping his hands close together, or a little apart, as circumstances may require, the end of the reins hanging through the right hand, and towards his thigh on that side. Where double reins are used, they should be handled exactly in the same way, a finger always dividing each rein, that is to say, they should never be clumped in the hand—of course we speak of cases where it is advisable to ride the horse on both curb and snaffle at once. With many good-mouthed horses, the curb rein may be knotted, and lie on the horse's neck, or hung on the little finger, to be used only as a last resort, when the horse refused to obey the snaffle. Ninety-nine out of every hundred, however, ride more pleasantly when the curb is touched lightly.

To return: the trot is the most difficult of any pace for a beginner, and the first lesson is pretty well sure to result in a succession of uneasy bumps to the pupil. For this reason it should be of short continuance, and he merely be told to raise himself in his stirrups, when after a time the motion of the horse will give him that easy up-and-down motion which proves such a difficulty to all beginners. It will not come all at once; but he will catch it for a few strides he knows not how, and then relapse into his bumping again, until, apparently as it were from instinct, he will find himself riding like other people, without any volition of his own, not elegantly or even easily at first, and there will still be the same tendency to lean forward, especially if the trot is long continued, but with time and patience all will come. Above all, do not hang on the bridle for support, ride from the thighs, knees, and calves of the legs. When you are at home in the trot, endeavour to ride your horse as you did in the walk, touching his mouth, and making him go into his bridle, until you feel equally master of him in this pace. When this is managed, the *pons asinorum*, as far as ordinary riding is concerned, may be said to have been passed, and the rest will come far more easily. Nevertheless, as in the slower pace, it will be well to continue the trot some time ere commencing to gallop or canter, as by this means a firmer seat and greater command over the horse will be acquired. Of course, the pupil should by this time be so far advanced as to make his horse start with the right leg first in the canter, which is done by slightly tightening the left or near rein, and touching him with the right or off heel; should he lead the near leg first, stop him and make him start afresh.

In the canter or gallop, sit well down on the fork, thus presenting as great a surface as possible to the saddle, and place the whole leg, knee, and thigh firmly, but without muscular pressure, against the saddle, the body erect, the hands down, nearly touching the withers, giving and taking to the mouth as occasion may require. No doubt many of our readers have been told to "stick their knees in well" when riding, but it is a fallacy, and we will explain why. The muscle of the leg and thigh placed gently against the saddle adapts itself to it, and in a manner moves with and adheres to the horse, but attempt to grasp him by mere muscular force, and the muscle becomes rigid at once, and will bound from the surface of the saddle like an india-rubber ball. It is by giving to and going with the motions of the horse that a really firm seat is acquired, not by resisting them. We were once asked by a friend, "How do you stick on your horse over a fence? by your knees, thighs, or how?" We answered, "By force of habit, and the yielding to the motion of the horse;" and it is the same in the gallop. Standing up in the stirrups at times causes both the horse

and rider, but it must be done entirely from the legs, not the hands. Many a man propped up with short stirrups, his horse's head steadied by a martingale, and holding on by the reins, can ride a long gallop, who, without these aids, would soon be wearied out; but we need not say that it is not the mode adopted by really good horsemen.

When we commence galloping, the value of the lessons as to riding the horse up to his bit, inculcated in previous articles, will become apparent, as most horses pull more or less when set going at their best pace, and the free mouth-touching and pull and drop, will now keep them within bounds, when mere strength would not for an instant stop them from running away. Moreover, it will enable the rider to throw the horse on his hind legs, and cause him to use his fore ones more freely and with greater liberty across ridge and furrow, deep plough, or any difficult ground, where, if he went with his weight in the bridle, a roll over would be no unlikely occurrence. By galloping in this form he will not only go faster but stay longer. Having thus got our pupil into the gallop, when he can go, say a mile at that pace without distress on a reasonably steady horse, he may be trusted on one that is not quite quiet; in fact, a horse that any ordinary man can ride; and a few remarks concerning the vices he is most likely to meet with may not be here out of place.

One of the most common and at the same time dangerous tricks is shying: some horses are so addicted to it, that riding them is a nuisance and misery even to a good horseman, and full of danger to a bad one. Sometimes it occurs from playfulness, or what is technically called "freshness," but more generally from fear; and one of the best horsemen in England says the only plan is to pull their heads as much away from the obstacle they are inclined to shy at as possible, and take no notice. In fact, the more confidence you have in your horse the more he will have in himself, and the greater chance of his losing this unpleasant habit. Many advocate riding him right up to the object, and letting him smell it. With colts this may answer; but we are convinced that as regards old horses it is useless, having tried it over and over again, and found them shy at the same object the next time they passed it. We have had many shy horses in our time, and never yet found anything that cured them. A thoroughbred grey of ours never would pass an omnibus, coach, or van, without turning round, and on more than one occasion actually leaped the fence from the road into the field in his fright, rather than pass them. This was caused by coming suddenly round a corner, and meeting a carriage full of ladies, whose coachman allowed so little room that their parasols (very gay-coloured ones) came nearly into his face. He reared up, and flung himself round; but so small was the space between the carriage and the hedge, that his quarters were grazed in turning, and the whole affair so alarmed him that he never would face anything of the kind again; yet he was not a shy horse in regard to other things, but he once or twice gave us a fall when riding in the dark, by going suddenly round on meeting vehicles which we did not see. "At the present moment," writes an experienced horseman, "we ride a little horse which shies at any and every thing, and so nervous is he, that we firmly believe he would go down a chalk-pit or precipice to avoid the imaginary danger. Road-scrappings are a dreadful eyesore to him, and every stone-heap becomes a bone of contention, even on our return from hunting. We have tried coaxing and coercion with about equal effect, and have at length arrived at the conclusion that the only thing is always to be prepared for a sudden spin round when on him, and take no notice. It will perhaps be asked why we ride such a brute. Our only answer is, that he is too good to part with, and his bad manners are condoned for the sake of his cleverness over a country."

COOKERY.—LXXV.

FRENCH SAUCES, ETC. (continued from p. 71).

Sauce à l'Huile (Sauce with Oil).—Peel some lemons, and cut them in slices. Remove the pips, and then add salt, pepper, a clove of garlic, tarragon, and parsley cut in small pieces. Moisten these materials with a little vinegar, and add a sufficient quantity of salad oil to remove some of the acid taste, and mix the ingredients well together.

Sauce faite de Beurre (Sauce without Butter).—Mix together the yolks of three raw eggs with six spoonfuls of fine olive oil, and season them with salt, pepper, and nutmeg. Put the mixture into a small vessel in a water bath, and expose it to a gentle heat, continually stirring the contents to cause the oil and eggs to become well mixed. When the sauce has begun to thicken, remove the vessel containing it from the water bath.

Marmelade de Tomates (Tomato Marmalade).—Divide some ripe tomatoes into quarters. Take as many ounces of sugar as you have pounds of tomatoes, place them over the fire, and expose them to heat until the sugar melts and becomes dark-coloured, owing to its conversion into caramel. Now slice into small squares as many onions as will weigh one-tenth of the tomatoes that have been cut up. Add them to the sugar in the pan, and let them remain there until slightly brown. Then put in the vessel with them the tomatoes, together with some pepper, salt, cloves, and nutmeg, and boil them over a quick fire. When sufficiently done, pass the liquid through a sieve, and evaporate it down to the consistence of marmalade. Pour it out on a dish, and allow it to get cold, when it will become solid. It is now to be placed in jam pots, the mouths of which must be covered over with double layers of very thick paper.

Verjus (Verjuice, the Preserved Juice of unripe Grapes).—To prepare verjuice, the grapes should be gathered while transparent, and the juice extracted by compressing them in a cloth, or in a wine-press, filtering it repeatedly until it becomes perfectly clear. To preserve this liquid, an ounce of salt is to be added to each pint of the juice, and it must be preserved in well-closed bottles. As this juice is very liable to undergo decomposition, the vessels in which it is to be preserved must be previously sulphured, by introducing into them a burning match that has been dipped in melted sulphur. The verjuice should be poured into the bottles while they are full of this vapour, and the mouth of the vessel instantly secured with a tight-fitting cork.

Fonds de Cuissons (Meat Gravy brought to a proper consistence for the preparation of Sauces).—This preparation may be used instead of *jus* in the composition of various sauces. It is prepared by straining the gravy produced by the cooking of meat, and boiling it down at a gentle heat to the consistence of sauce. Sometimes it is thickened, without being boiled down, by the addition of various materials, such as a *roux* of flour and butter, the yolks of hard-boiled eggs, tomato marmalade, or by chestnuts roasted and crushed into powder.

Jus (Meat Gravy for Sauces and similar purposes).—To prepare *jus*, place in a stewpan slices of bacon, veal, and some minced ham. The weight of meat put in will of course depend upon the quantity of juice required. The rule is usually to employ one pound of meat for each half-pound of *jus*. Then place in the stewpan some onions, carrots, parsnips, celery, parsley, thyme, chives, cloves, nutmeg, and pepper. Place the pan over a gentle fire until all the juice contained in the meat has escaped, then increase the heat until the juice has become as thick as it can be made without risk of burning it. Then remove the meat, and put as many lumps of butter the size of an egg as there were pounds of meat employed. Thicken with a proper quantity of flour, and form a *roux*.

When this is done, put the meat back into the stewpan, pour in some stock broth, simmer it for two hours, skim the liquid, and strain it.

Jus au Vin (Meat Gravy prepared with Wine).—This is made in a similar manner, equal parts of wine and stock broth being employed, instead of stock broth alone. A little sugar is also added to the flour with which the *jus* is thickened. Either white or red wine, as may be preferred, can be used for this preparation.

Sauce à la Carpe (Carp Sauce).—Put in a stewpan some slices of bacon and veal, and lay on it a carp cut in pieces, together with four onions, two carrots, some thyme, parsley, chives, and a little garlic, if desired. The vegetables must be cut in slices, and the herbs chopped up in small pieces, before being used. In addition, some salt, pepper, nutmeg, and cloves, are required to flavour the sauce. A glassful of white wine is then poured into the pan, and it is placed on a slow fire, and allowed to simmer gently until the contents become so thick as to be in danger of being injured by the heat. Then add equal parts of white wine and stock broth, and boil for another hour, and strain through a sieve. Thicken the sauce, by the addition, in small quantities at a time, of brown *roux* (directions for preparing which have been already given); boil together, continually stirring, to bring it to the proper consistence.

Sauce Béchamel (Sauce prepared with Milk or Cream).—Cut up into small squares about half a pound of veal and the quarter of a ham, and put them in a pan over a gentle fire. Add to them two sliced onions and two carrots, with parsley and chives, well chopped up. Season the whole with pepper and nutmeg, little (if any) salt being added, because of the saltiness of the ham. When the meat is cooked (but without allowing it to become browned), mix a spoonful of flour with the materials in the stewpan, and then add a pint of milk. Boil the sauce slowly, stirring continually, to prevent its adhering to the sides of the vessel, until it becomes of a proper consistence, then strain through a sieve.

Sauce Béchamel may also be prepared by another Method.—Boil down at a gentle heat a pint of milk to one-third. Mix up some flour with butter, and add it to the milk, and season with salt, pepper, and nutmeg. Simmer the sauce gently for about a quarter of an hour, until it thickens, and then remove the vessel from the fire. Put some more butter into the sauce, and stir it continually until well mixed. In preparing this sauce, it will be advisable to add any beef or fowl gravy that may be at hand.

Rémoulade (Sauce with Mustard).—Mix up the raw yolk of an egg with some powdered sugar and five or six spoonfuls of salad oil, and then add the same number of spoonfuls of mustard, and either one or two anchovies pounded into a paste, or some herbs chopped up. If the latter is preferred, they are thus prepared:—Take two shallots, and as much as can be taken up between the thumb and finger of the following herbs—pimpernel, tarragon, chervil, and garden cress—chop them up very fine, and mix them together.

Rémoulade (Créole Rémoulade prepared in the West Indian manner).—Take the yolks of a few hard-boiled eggs, and the same number of spoonfuls of salad oil. Beat up the yolks in a mortar, and gradually add the oil, and make them into a paste. Season with salt and curry powder, and reduce it to the consistence of a sauce with the required quantity of vinegar.

Sauce aux Anchois pour le Bœuf (Anchovy Sauce for Beef).—Soak some anchovies in water for half an hour, then remove the bones, and chop them up. Fry them slightly in butter and flour over a slow fire. Add some small cucumbers cut into squares, and some stock broth. Season with salt and pepper, and simmer the whole together until done. Before sending to table, add some capers.

HOUSEHOLD AMUSEMENTS.—XXXV.

MODEL SHIP-BUILDING (continued from p. 18).

How to Make a Model of a 25-ton Yacht.—Having completed the instructions for delineating the form of the vessel, the next thing is to explain the mechanical details, showing how the various parts are shaped, jointed, and put together; but, before proceeding with the work, every detail must be accurately shown on the drawings.

First prepare the centre frame, comprising the keel, stem, and sternpost, each 2 feet wide by 9 inches thick. These should be made of straight-grained Honduras mahogany. On the bottom of the stem and sternpost form two tenons, each 1 foot long, 7 inches wide, and 2 inches thick, and let these fit tightly into the mortices in the keel, and put together with glue (see Fig. 1). Then lay it on the drawing, and see that the length of keel and the rake of the stem and sternpost exactly coincide with it. Now cut in with a saw for the grooves in the projecting part of the keel, and down to the surface of the lower part of it, to receive the ribs, which are 5 inches thick. The cross section line, No. 6, will be the centre of the rib, but not so with the others. In the forepart the 5 inches, or the thickness of the rib, will be set off from the centre line on the side next the stem, and in the afterpart, on the side next the sternpost, and the same rule must be observed in sinking the

for the top of the ribs in the side of the main-

It will be better, before cutting away the wood in the grooves, to roughly shape the upper part of

the keel, and to sink the rabbet, but not to the full depth, and leave it for finishing when fitting the planking. Also sink the rabbet in the same manner up the stem and sternpost.

Now set off on the drawing, within the boundary-line of the deck, 2 inches, the thickness of the side planking,

and then make a true mould to fit this line, which will be the form of the deck within the bulwarks, and also of the outer edge of the main-deck beam, *g* (Fig. 2), which supports the outer edge of the deck, *f*, to which the cross deck beams, *m*, and the ribs, *n*, are fixed. Mark on both sides of the mould the centre lines of the cross sections.

We will now explain the best way for making the cross deck beams. First, plane up a piece of deal 12 feet long and 10 inches deep, then gauge a line on the ends 5 inches from the face, and mark in a centre line on the face, and from this round off to the line on the ends, to form, as near as possible, a segment of a circle

(see Fig. 3). Then set a gauge to 6 inches—the thickness of the beams—and mark and cut off one at a time.

Now proceed to make the main-deck beams, of deal, 9 inches deep and 9 inches wide, each in two parts, and scarfed at the bows. Some care will be required in adjusting and jointing them together at the head. To do this, proceed as follows:—On the bench, or any flat surface, fix a

block 9 inches thick, to support the beams at the head, and another packing-piece, 2 inches thick, to support them at the stern on No. 12 line. Place the beams on these pieces, allowing the part unsupported to drop or rest on the flat surface; then make a perfect joint

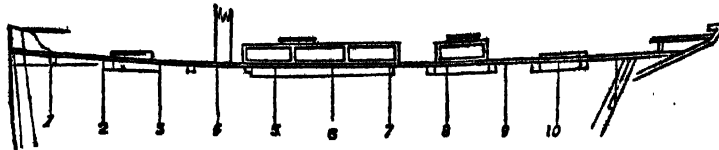


Fig. 4.

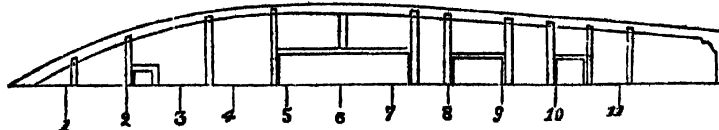
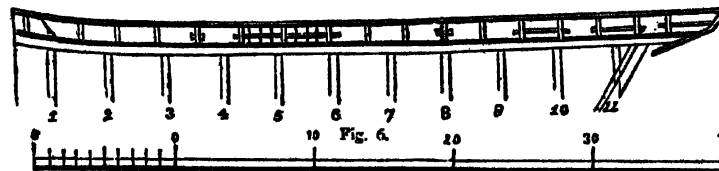


Fig. 5.



SCALE OF FEET.

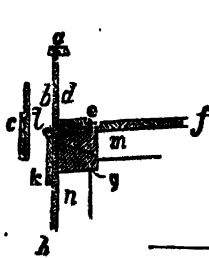


Fig. 1.

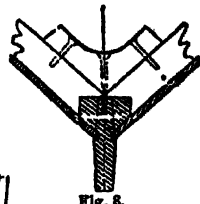


Fig. 2.



Fig. 3.

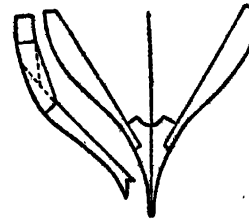


Fig. 4.

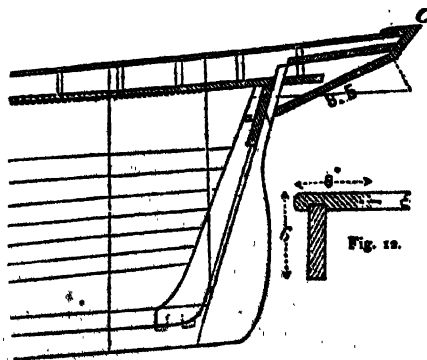


Fig. 5.

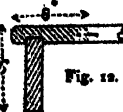


Fig. 6.

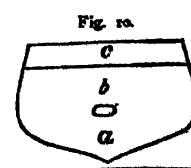


Fig. 7.

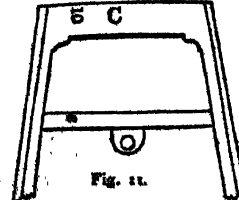


Fig. 8.

at the head, and screw them together to retain this position. Screw on a temporary piece of wood on the under-side of the beams, to preserve the proper width at the stern.

Now fit the cross-deck beams, by first letting in one at each end, taking care that the centre lines marked on them are exactly central between the boundary lines; and then fix the intermediate beams so that the centre lines of each range with those already fixed. Let them have a 5-inch bearing at each end on the main-deck beams, as shown in Figs. 4 and 5. Measure off from the front of the stem 3 feet 8 inches, the centre of the first beam, and then mark off, in the following order, 4 feet 7½ inches, 5 feet, 4 feet 9 inches, 10 feet 7 inches, 2 feet 2 inches, 3 feet 4 inches, 2 feet 11 inches, 3 feet 3 inches, and 4 feet, which are the distances from centre to centre. In the 10 feet 7 inch and 3 feet 4 inch spaces are to be fixed two longitudinal beams, with a clear space between them of 3 feet 8 inches, for the hatchways; in the 10 feet 7 inch space an intermediate beam must be let in between the hatchway beam and the main-deck beam, as shown in Figs. 4 and 5. Now that the deck beams are fixed, lay on the mould, and mark with a chisel the outer edge of the main-deck beam; then reverse the mould, and mark off the other beam, and carefully plane them down to these lines. Then from the mould mark off on the edges of the beams the centre lines of the cross sections, and sink the grooves 5 inches deep and 5 inches up from the under side of the beam (see Fig. 2).

Next show on the drawing the rise of the outer edge of the deck fore and aft, by setting up the following dimensions:—Measured from the line *g*, 9½ inches on No. 1, 6 inches on No. 2, 3½ inches on No. 3, 1½ inches on No. 4, ¾ inch on No. 5, ¼ inch on No. 6, 0 inches on No. 7, ¼ inch on No. 8, ½ inch on No. 9, 2 inches on No. 10, 3 inches on No. 11. Then show the curve of the deck longitudinally on the centre line, which is 4 inches lower amidships than at the head and stern, shown in Fig. 4. The deck frame, as first put together, was perfectly straight on the centre line; but if the length of the No. 6 ribs are set off from the drawing, they will bring it down to the required curve.

The deck, *f* (Fig. 2), is 2½ inches thick, and may be one piece, with pencil-lines to represent the planks; or it may be composed of planks 4 inches broad. For this, select a piece of straight-grained yellow deal, free from knots, and proceed to joint and glue together with best glue two pieces 4 inches thick and 2 feet broad. When the glue is hard, joint and glue on the next piece, and so on till they form one-fourth the breadth of the deck (see Fig. 3). Then cut it through the middle, and joint and glue the edges together, and again cut it through the middle and glue them together, which will make up the full breadth of the deck. Now plane it down to 2½ inches in thickness, and then lay on a coat of rather thick red and white lead paint, and on this spread a piece of thin calico, and rub it well down with the paint-brush. This will bind the planks firmly together; and when the paint is hard, the wood will be less affected by damp.

Fig. 2 is a section to an enlarged scale of the bulwarks, deck, &c., at midships. The gunwale, *a*, is 4 inches broad and 2½ inches thick, and may be of two lengths, scarfed at the bows, or in one length steam-bent. The top is slightly rounded on the under-side, and ¾ of an inch from the front edge is a 1 inch groove, to receive the top edge of the bulwarks, *b*. The bulwark is 1 foot 10 inches high and 2 inches thick up to the top of water-way; and from the top of water-way to the upper edge is 1 foot 2 inches, and this part is gradually diminished to 1 inch thick, to fit the groove in the gunwale, or it may be sunk, as shown at *c*. The bulwarks assume a curve on the edge, therefore they must be prepared wider than shown in the section. The curve can be easily ascertained by

bending a piece of stout cardboard round and against the stanchions, and cutting the bottom edge to fit the deck.

The water-way, *e*, is 6 inches broad, and ¼ inches thick at the outer edge, and diminished inwards to ½ inch, and the angle rounded off. This may be of two lengths, with a square butt-joint at the bows.

The stanchions, *d*, to which the bulwarks are fixed, are 4 inches wide and 3 inches thick at bottom, and 2½ inches at the top. These are let in flush with the edge of the deck and the main-deck beam, and should be firmly fixed by fine screws. There are nineteen stanchions on each side, fixed at equal distances from centre to centre. The centre of the first is 1 foot astern of No. 1 cross section line, and the last one 5 feet astern of No. 11 line (see Figs. 4 and 5).

The waling plank, *k*, is 1 foot 2 inches deep at the stem, and 1 foot at the stern, and 1½ inches thick, and rounded at the bottom edge. This depth includes the astragal, or bead and square, *l*, which are 2½ inches and 1 inch respectively.

The curved ribs may be made in various ways. Steam-bent tough wood is a very good plan, but, unless properly done, they are apt to alter their curve. A far better way is to find the required curve in the natural form of the wood. In the country it is easy enough to get loppings of the oak, generally used as firewood. Those branches from 1 inch to 2 inches diameter will be a convenient size; and from the peculiar growth of the oak almost any form may be found. Any of these cut through the middle will make two ribs of the same curve. The plan we have adopted—which may perhaps be attended with as little trouble—is to make them of mahogany, or other suitable wood, in parts, glued and screwed together at the joints, as shown in Fig. 7. The joints should be strengthened by thin pieces of wood glued on with the grain running across, or the reverse way to the parts of the rib. The ribs for sections 1, 2, and 3 are in one piece, as they are so nearly straight. The ribs for sections 9 and 10 are composed of three pieces (Fig. 7). The correct form of the ribs for the various cross sections may be got by setting off 2 inches from the boundary lines and parallel thereto, and cutting cardboard moulds to fit those curves. The bottom ends of the ribs should be nicely fitted, and firmly fixed to the keel (see Fig. 8), and the top ends let into the main-deck beam, as shown in Fig. 2. Next bevel off the ribs to the various angles to receive the planking, which may now be fixed. In starting with the first plank, make a cardboard mould to fit the rabbet in the keel, and take care that it lays perfectly even on the ribs, without any twist or buckle, as that would distort the curve, and give trouble. Let the first plank be about 2 feet broad at the stern and about 5 inches at the stem, and the next plank about 1 foot 6 inches broad at the stern and 1 foot at the stem, and then with a thin narrow lath mark off on the ribs the joint-lines for the remainder of the planks in such a manner that they have a very little curve, which can be regulated by the amount of taper given to them at the ends. The planks should not be more than 10 or 11 inches broad, and should be closely jointed and well fitted in the rabbets, and bedded in red and white lead paint, and fixed by ½-inch fine-cut brads; then very nicely clean off the face of the planks to an even surface, and line the inside between the ribs with calico, as recommended for the under-side of deck. Calico may also be stretched on the outside in a similar manner. Creases must be avoided, but where they occur a piece must be cut out with a sharp penknife and the edges brought close together. This will very much strengthen the planks; and after giving it another coat of paint it can be rubbed down, and the process repeated until it presents a beautiful even surface, and then varnish it.

The details of the deck and other parts connected with it behind the stern must now be shown on the drawing; the diagrams, Figs. 9, 10, 11, and 12, will go far to

explain the mode of fitting and putting them together. The part of the stern, *a* (Figs. 9 and 10), is 6 inches thick, and is grooved out to fit the sternpost, and a rabbet formed on the lower edge to receive the planking, and the top edge shaped to form a beam for the deck, and to this the main-deck beams are fixed. The part *b*, where it intersects with *a*, is 1 foot below the line *g*, and at the point of intersection with *c* it is 1 foot above the line *g*. The length of *b* from *c* to *a* is 8 feet 5 inches, and $3\frac{1}{2}$ inches thick. On this will be jointed the stern-piece, *c*. It is curved two ways, and should be formed of one piece. It has a curve of 3 inches on the back. The curve on the top is parallel with the curve of the raised after-deck. The ends of the main-deck beams are splayed off on the under-side, to fit the part *d*, to which it is firmly screwed. A rabbet is formed on the ends of *c* and *d*, to receive the bulwarks. The raised deck will of course correspond with the main-deck, and will stand 9 inches above it; and the ends of the planks are tongued into a mahogany sill 8 inches wide, *e* (Figs. 11 and 12).

GEMS AND JEWELLERY.

THE value of a jewel is estimated by its rarity, its freedom from flaws, and its weight. The weight is reckoned by the carat, which is equivalent to four grains—forty-four carats being contained in an ounce.

The manner in which a gem is set in an ornament of jewellery depends chiefly on its comparative freedom from defects. If precious stones are translucent and free from spots or flaws they are always set without any setting or foil behind them. Gems mounted in this manner are said to be set *à jour*. Silver is generally employed for mounting valuable limpid gems, as it displays them to greater advantage than gold is capable of doing.

When jewels possess any faults, and are thus of inferior value, various methods are employed to conceal their defects, and to display any beauty they may possess to the greatest advantage. This is usually done by setting them in a metal frame, and by putting some bright reflecting metallic surface behind them. In this way, by the use of either silver or copper foil, the lustre of any gem may be much increased. Still further to heighten the effect of the jewels, this foil is generally coloured by the jeweller so as to reflect light of that colour best suited to display their depth of tint to the greatest advantage. This is done by coating the foil with a varnish of coloured gelatine. This liquid is prepared by soaking isinglass in water until it swells, and then dissolving it in alcohol. The solution of isinglass may then be coloured any tint required to suit the stone; either yellow, with saffron; red, with cochineal; or blue, with litmus. Other colours, of various tints, may be prepared by mixing these in different proportions. Sometimes jewels are painted on the back with a composition of this kind, to increase the beauty of their tints. Precious stones of a pellucid character, like the chrysoptase and the carnelian, are often treated in this manner. By this means an inferior stone may be made to look like one of considerable value. Besides this, gems often contain flaws in their interior, which are hidden by the foil, and by the manner in which they are mounted.

Sometimes the defect in a jewel is concealed by painting over the back with a solution of ivory black and mastic in alcohol, leaving uncovered only the spot where the flaw is situated. In other cases that part alone is painted over. Sometimes minute cracks exist in a precious stone, these are often concealed by filling them up with the juice of garlic. It may also happen that the stone may have been broken during setting; this may be concealed by gum mastic in such a manner that the injury cannot be perceived. For these reasons, valuable gems

should never be purchased until they have been removed from their setting, so as to admit of the most careful examination of every part of their surface. When a precious stone has very many faults, it is occasionally cut into facets, by which means its defects are partially concealed from observation. Diamonds are often found to contain minute fissures, imperceptible under ordinary circumstances, but which materially impair their value. The presence of the flaws may be ascertained by putting the diamond into either oil of aniseed or Canada balsam; if they are moved in various positions, and carefully examined, the least flaw will be at once perceived.

Sometimes quartz or rock crystal—the substance of which the spectacle-glasses known as “pebbles” are made—has been employed in the manufacture of artificial gems. Occasionally the quartz is cut into the shape of the jewel, and brightly polished; it is then exposed to heat, and suddenly dropped, while hot, into a solution of colouring matter; the coloured fluid then enters the cavities produced by the expansion of the quartz under the high degree of heat to which it has been exposed, and is retained in them. In this way a red stone may be imitated with a solution of cochineal; a blue, with indigo or cupriate of ammonia, &c.

Sometimes artificial stones are composed of two layers of quartz, cemented together with mastic; the interior of one of the pieces being hollowed out, and filled with coloured fluid. These imitation gems are known as “concave doublets.” What are called “doublets” consist of a piece of quartz cut to represent a jewel, firmly cemented by mastic to coloured glass; the colour of the glass being arranged to correspond with that of the gem it is intended to imitate.

Where a gem happens to be very thin, it is cemented by mastic on the top of a piece of quartz of a similar size and shape; and which, when properly set, is not easily to be detected. Stones of this description are known as “half doublets”; and their nature may be easily proved by putting them into hot water or alcohol, which softens the mastic and causes the joined pieces to separate.

The colour of gems is sometimes altered, and their value increased, by exposing them to the action of heat. Sapphires occasionally have specks on them, which may be removed by making them hot in a crucible lined with clay. Amethysts often have dark spots, which may be got rid of in the same way, by exposing them to heat in a mixture of iron filings and sand; but great care has to be taken that they do not remain too long, otherwise they would lose their colour, and assume the appearance of quartz. Sometimes gems are burnt by enclosing them in sponge and setting the sponge on fire, allowing it to burn until nearly consumed. When the Brazilian topaz is made hot in this manner it becomes of a pale red. The Oriental carnelian becomes of a finer colour when treated in a similar manner. Chalcedony, when burnt, assumes the appearance of the onyx, and the zircon has its colour much improved.

When large gems are employed in articles of jewellery, they are often surrounded with smaller ones of various kinds, for the purpose of apparently increasing the size and beauty of the colour of the jewel by contrast. Turquoises, rubies, emeralds, and rose diamonds, are generally used for this purpose.

The best way of cleaning precious stones, especially when set, is to employ a composition of two parts bone ashes or rotten-stone very finely powdered with one of flour of sulphur. The powders are to be mixed thoroughly, and a little put on a piece of leather, with which the surface of the gem is to be rubbed, and the stone is then to be brushed with a stiff hair-brush. This friction with the leather and the hair-brush is to be repeated frequently, until the gem has gained the requisite degree of polish. It is then to be cleaned with a piece of leather or soft cloth

AMATEUR TURNING.

II.

At the conclusion of our former article we described the mode of fixing the work for turning by the use of glue or other cement.

Sometimes, however, time does not allow of an article being glued to the chuck, and a more speedy method of cementing it is necessary. A good cement may be made by taking—of Burgundy pitch, two pounds; of colophonium, one pound; of resin, one pound; and of yellow wax, two ounces: melt in an earthen pot over a slow fire, and stir carefully, to prevent its going over the sides, which would be attended with danger, as the substances are highly inflammable. When the mixture bubbles, remove it from the fire, and gradually stir in the quantity of a ball of whitening in powder. Then replace the vessel on the fire, and allow it again to become hot, continuing to stir it all the time. Remove it quickly from the fire, and plunge the contents into cold water; after they have remained there a minute, they must be well kneaded with the hands, and rolled into sticks upon a stone. When required for use, the end of one of these sticks must be heated, and rubbed over the chuck; the wood or ivory to be attached must be heated, and applied while hot to the cemented surface. This cement must be made quickly, or it will not be strong.

For use in cold weather, however, another cement has been recommended as preferable to the above, and work fixed with it may be knocked off, when required, with a single blow of the mallet. It consists of Burgundy pitch, two pounds; yellow wax, two ounces; and Spanish white, two pounds; mixed and used in the same manner as the preceding.

Chucks are those blocks, whether of wood or metal, which are screwed to the nose of the mandrel, and to which the work to be executed is affixed. They will be required of a great number of shapes and sizes, according to the work to be performed. Some of the best chucks are made of brass, for these will screw most tightly on to the mandrel, and consequently give most steadiness to the work; but brass chucks, in all the necessary variety, would involve far too much outlay for most turners, and wooden chucks are therefore employed, which the workman can make for himself; these, while new, fit tightly, and do well; but they are liable, if the wood shrinks, to fit loosely, and therefore work unsteadily upon the screw of the mandrel. This difficulty may, to a great extent, be obviated by having a number of brass plates an inch and a half wide, with a screw to receive the nose of the mandrel, to fix into wooden chucks by means of four screws, and which may be made to serve for a number of chucks in succession. A generally useful form of chuck is the cup-chuck, shown at Fig. 1, as it may be made to hold

almost any object which can be inserted in it; for, if the chuck be too large, a wooden collar can be readily turned to contract the opening to the required size. On this, the die-chuck, Fig. 2, is an improvement; it is not so deep as the last, and has screws passing through its sides, which, when tightened, grasp any object placed within;

the die-chuck is, therefore, calculated to hold any article which is not wider than its own diameter. The ring-chuck, Fig. 3, is of wood, and after a hole for the reception of the object has been bored in the centre, is, as shown in the engraving, sawn through into six, and as these pieces are smallest at the farther end from the mandrel, a ring of metal, therefore, driven on to them, causes them to close round the object placed within, and to grasp it tightly. Fig. 4 is simply a brass disc, with projecting spikes to be driven into the piece of wood to be turned; this, however, does not form a particularly secure mode of chucking, the article being very liable to be jerked off; it is, therefore, better used in connection with the back puppet.

Sometimes this chuck is varied, by having, instead of several plain spikes, a single tapering screw-spike in the centre. The square-hole chuck, Fig. 5, differs from the preceding ones, in being intended to hold, instead of the article to be turned, a variety of drills and bits, which are made to fit it and to work upon any object placed in front of them.

These are the more important chucks in use in ordinary concentric turning, and those which it seems necessary to mention as containing any distinct principle; but in the majority of cases the turner will make his own chucks, to suit the work which he has in hand. Dry, hard wood should be used; box being the best. The piece must be roughly trimmed into a cylindrical shape, and centred before being put into the lathe; the centring must be done by finding the middle of the ends with the compasses. When centred, fasten this on the chuck, and place the rest across, so that a hole can be bored nearly the size of the mandrel. This done, take it from the chuck, place it in the vice, and screw into it a tap, made of the dimensions of the nose of the mandrel, which will cut out a thread, and, this being removed, the new chuck may be screwed upon the mandrel. It will have to be turned round and smoothed with the gouge and chisel, and to have that end of it which faces the back puppet made exactly flat and even.

Boring Collars.—For hollowing out long slender articles—such as, for instance, a case for knitting or crochet needles—some further support is required by the wood or ivory than can be afforded by the chuck and back puppet, and rests called boring collars have to be employed. The boring collar, Fig. 6, is a disc of brass, in which are circular holes, of different sizes to fit different objects, and all placed at equal distances from the centre. In using it,

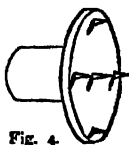


Fig. 4.

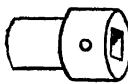


Fig. 5.

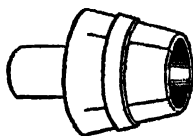


Fig. 3.

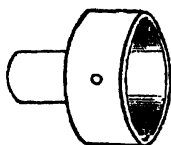


Fig. 1.

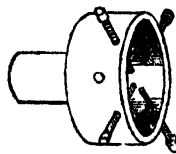


Fig. 2.

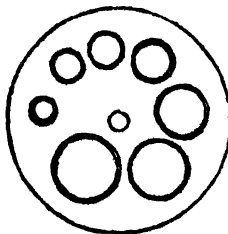


Fig. 6.

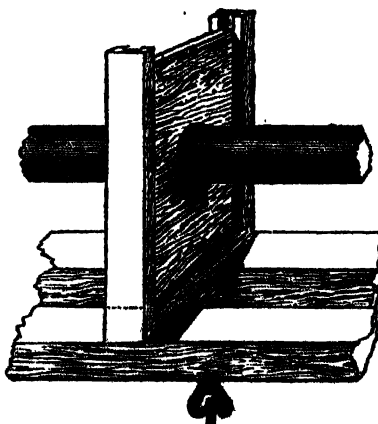


Fig. 7.

a lower right-hand puppet than usual must be employed, to which it is attached by a screw through its centre, just opposite to the nose of the mandrel. Fig. 7 is a more manageable, and therefore more generally useful collar than the last; its foot fits, like the puppets and rest, into the aperture in the bed of the lathe, and its upper part consists of a framework with a groove, into which a number of movable collars, having apertures of different sizes, can be fitted. These sliding collars are sawn across the centre of the opening, as shown in the illustration, in order that, by removing the upper portion, the work may be readily introduced and removed. This collar is useful, not only for boring, but also for the support of any long, slender object, which might otherwise easily be fractured—such as, say, a penholder; a moulding in the centre of the work being in this case made to run in the collar, while the right-hand end is supported by the spindle of the back puppet.

Materials.—Although the lathe is used for turning all kinds of metals, as well as many animal, vegetable, and mineral substances, the materials upon which the amateur turner expends his skill are generally confined to certain kinds of wood, and to ivory. Before being used by the turner, all wood should be thoroughly seasoned, and none should be employed which is less than twelve months old. To obviate defects in this respect, some turners boil insufficiently-seasoned wood in a ley of wood-ashes, in which they allow it to remain till cold, and afterwards dry it in the shade. It will also be found that the danger of cracking is very much diminished by quartering the wood, if the logs are sufficiently large to admit of this being done. It has also been recommended that logs of the harder foreign woods should be oiled occasionally on the outside, to prevent their becoming excessively dry, and consequently opening in cracks; such woods it is always advisable to keep in a cool place, and never to allow the sun to shine upon them.

A great variety of our common English woods are used for plain turning; but, with the exception of box, few of them are hard enough to admit of very elaborate ornamentation. Beech, from the smoothness of its grain, and the readiness with which it is to be procured, is very freely employed. Boiling it when cut into moderate-sized pieces is found to add to its smoothness in working, and to render it more durable. Owing to its softness, however, beech cannot be employed for any very delicate articles, though it may be very useful for the beginner to practise upon, in large work, at first. Maple and sycamore are also good light woods, particularly the latter, which is frequently beautifully white; but the quality of sycamore varies much, according to the situation in which it is grown. Elm, chestnut, and walnut are darker woods, and have often, particularly the latter, much beauty of grain. Chestnut and walnut are hard and firm, and the appearance of old walnut may be greatly improved, and rendered very beautiful, by placing it in an oven after turning, and polishing while hot with walnut oil. Oak is too much wanting in uniformity of texture to be good for turning, except upon a large scale, and even for this the American works better than the English. Pear-tree is good wood, of even texture, and varying much in colour; but it is too soft for delicate work. The yew, the cherry, and plum-tree are also good in colour, and much used in turnery; but, though harder than the above, they will not bear very minute ornaments. A compact and beautifully white wood is that of the holly; indeed, in respect to colour it is superior to all others of English growth, and boiling is found to render it still whiter. Elder is a good wood, but somewhat yellower than holly. The most valuable, however, of all English woods to the turner is box, which is equalled by no other in the hard-compactness of its grain; while its colour, somewhat yellow, is agreeable, and it will admit

of any amount of ornamentation of the most delicate kind.

The more elaborate specimens of the art of turning, however, are generally produced in those far harder woods which are imported from tropical countries. The variety of these foreign woods is very great, and the grain of most of them is so hard that they can scarcely be worked with the ordinary carpenters' tools. Most of them far surpass our native wood in beauty, and are susceptible of a much higher polish. As a rule, they are only to be obtained in small logs, the trees which produce them being generally lofty, but very slender. One of the most useful of these is ebony, which is imported from Africa, and chiefly from the Gold Coast; it varies somewhat in colour, inferior logs being brown, but the best and most prized are of a deep rich black. Cocoa is much used; it is streaked with beautiful dark and light browns, and is the wood of a kind of palm grown in the West Indies. African thorn is rarely procured quite good, and is highly valued; it is exceedingly hard, and of a rich deep brown. Calamander wood is brought from Ceylon; it is hard, heavy, and takes a fine polish; its colour is very beautiful, passing from a dark chocolate through delicately-shaded gradations to cream colour. Ringwood, which is very hard, is brought from Brazil; it is veined with black, brown, and chocolate. Snakewood, tulipwood, leopardwood, and partridge-wood are, as their names indicate, all very beautiful, and they are all highly esteemed by the turner.

Ivory, notwithstanding its hardness, is by practised turners considered more agreeable to work than wood; for it is less liable to split, it can be more readily polished, and when minutely ornamented it shows the embellishments lavished upon it to greater advantage than the other material. Our own supplies of ivory are chiefly derived from Central and Southern Africa, a less quantity being imported from the East Indies; but in Russia, almost the whole of the ivory consumed is derived from the fossil remains of the mammoth, or northern elephant, which was common throughout Europe. Ivory is expensive; and it is difficult before a tusk is cut to tell whether the quality will be good or bad; those portions of the tooth which are hollow are to be bought much more cheaply than those which are solid, and for some purposes they will be found almost equally good. Bone can in some cases be made to serve as a cheap substitute for ivory; but it has none of the beauty of that material, and cannot be worked with the same degree of facility. The greater part of the bone used is brought from the eastern coast of South America, and is derived from the wild cattle of the Pampas. To bleach new ivory, place it in the sunshine, and keep it constantly damped, so as to prevent its cracking. We shall continue the subject in another article.

THE HORSE.—XV.

RIDING AND DRIVING (continued from p. 95).

REARING is a very bad vice, and perhaps nothing does a horse addicted to it so much good as to fall over backwards; but it is an awkward remedy for the rider, although we have known men who would choose the right moment, pull the horse over, and get clear themselves, occasionally even pitching on their legs. For an ordinary rider to attempt anything of this sort would be simply madness, and his best plan is to lean as forward as he can on the neck, not touching the horse's mouth at all. Fortunately, this habit is not very common among horses that have been ridden some time, although nearly all colts and young ones will do it at times. Kicking is more general, but by no means so bad a vice as rearing, and there are few men with anything of a seat who cannot sit out a

good effort of this sort. Caught unawares, they are sometimes kicked off, of course; indeed, we have good reason to know that people are caught napping in this way, having once run for an hour about a wet grass field (up to our knees nearly) after a horse that had caused us to execute an involuntary somersault on the shortest notice. With fair warning—which most horses give to one who knows their ways—there is little danger from kicking to the men on their backs, as, if their heads are only well up, they cannot do much harm. One of the most inconvenient habits is for a horse to kick when mounted, generally the result of a previous bad back. In this case the groom who holds him should keep his head well up; and a severe jib administered with the curb, will at any rate mitigate the evil, and allow the rider perhaps time to get seated and gather his reins, when he is in a position to take care of himself. Saddling the horse a long time in the box or stable before mounting, so as to get his back warm, is of course a precaution no horseman would neglect, and sitting on him in the stable for a time before coming out would, we have no doubt, do good. Buck-jumping is, happily, not common amongst English horses; but those who visit the colonies must make up their minds for it, unless they keep out of the saddle. Few men can sit a confirmed buck-jumper; and the only plan is to keep your own hands down, and get your horse's head up as quickly as you can. While he is bucking keep your eye steadily on the pommel of the saddle; once lose it, and down you go. We should explain that in this vice a horse gets his head between his knees—so that you lose all in front of you—his sides distended, and back arched like a barrel, his hind-quarters drawn under him, and while in this uncomfortable position, springs a great height into the air, coming down on all four legs at once, with a concussion that, before it has been repeated many times, shakes an ordinary rider clean out of the saddle. In fact, they have been known to send the saddle over their heads without breaking the girths, and even a crupper won't always prevent their doing it, as the colonial horses have a way of twisting their tail out of it. Once the saddle gets well on their shoulders, to shake it off over the head and fore-legs is not such a difficult task; but we leave our readers to guess what chance an ordinary rider would have with a horse of this kind.

Restiveness is the last vice we shall notice, inasmuch as, with a view to carry out this, all those we have named are brought into play. Restiveness is caused by horses having too much sense, so that, instead of giving kindly to the will of their rider, they always wish to take their own road—generally the nearest one to the stable—and when once confirmed in the vice, they will fight to the last rather than give up—rearing, kicking, and buck-jumping until they get their own way, although the former mode of fighting is more common with them than the two latter. The fault generally arises from bad and timid riding in the first place, and when once acquired is hard to eradicate. Violence, as a rule, is of little use; but when a horse first sets up and refuses to proceed, pulling him sharply round and round several times, with a severe jib administered to the mouth, and a prick or two with the spurs, will often make him proceed. Backing for half a mile or so, until he is thoroughly tired, will also have a similar effect; but these remedies cannot well be used, except by a rough rider, in any but ordinary cases of jibbing, where the horse displays little or no violence. If he tries to rub you against a hedge or wall, as many will do, put the leg in danger forward on his shoulder, and pull his head as hard as you can *to the wall*, instead of trying to get him off. This will force his body away from it. With very restive horses the best remedy, if you have the time to spare, is patience; where they stop, there make them stand. In time they will wish to move on,

but do not suffer it—make them stand another hour or two, more, even, if you are not in a hurry. After practising this a few times, he will generally go for you, but relapse into his old habits when mounted by a stranger. Use him also to go in and out of his own stable often, and turn him on the pillar reins while he is in. If he refuses to move on coming out, sit on him until he does what you wish; but remember it is not every horse that is worth taking this trouble with; and for a moderate beast the best remedy is to send him to some repository and sell him for what he will fetch, without warranty of any kind. Running away, although bad and dangerous, is neither more nor less than hard pulling carried to exaggeration. The best plan, when you find out that your horse has overpowered you, is to let him go for a distance, if you are in a place where it is feasible, and when he has pumped himself out, pull him up. As a general rule, the harder you pull the faster he will run, and by getting his mouth deadened to the bit you lose all chance of commanding him; so that it is best to drop your hand, and merely steer him clear of all obstacles, and if you can turn him into a piece of deep, heavy ground, do it. But with good handling a horse seldom runs away. He may pull very hard, but light hands pulling and dropping to him will nearly always prevent his making an actual bolt.

With these hints on the most prominent vices to be encountered in horses we must close our present paper.

DOMESTIC MEDICINE.—XLIX.

RHEUMATISM.

WHO does not understand rheumatism, either by experience or popular description? It would seem almost superfluous to try to give any medical account of a disease that is so common, and that has been largely treated in a domestic way; and yet few diseases are more entitled to have a clear statement in a system of Domestic Medicine, whether we regard the commonness of it, or the importance of a few points in the domestic treatment of those who are subject to it. This is eminently a disease in which the patient must minister to himself. He may, and probably will, have to consult the doctor when the "pains" are worse than usual; but for the victory over his tendency to pains—for keeping them under—he will have to depend on a few principles of treatment which we shall immediately explain.

Nature of Rheumatism.—First we shall give a brief description of the rheumatic pains. They may affect either joints or muscles, and either the small joints or the larger ones. Accordingly, it has been divided into muscular rheumatism, and rheumatism of the joints. When it affects the muscles there is little disturbance of the system—no fever, and no indigestion. They are generally not acute, but dull, aching pains, making movements of the limb or part awkward from stiffness. But sometimes the pain is very acute and sharp. This is especially the case with certain rheumatic pains in the muscles of the back and neck. Though such acute pains are considered to have their seat in the muscles, it is probable that they are more neuralgic than muscular in their nature. Be this as it may, they are as sharp as if a knife were cutting the part affected, and often forbid the slightest movement of the patient. Sometimes these acute attacks seem to come on immediately after a sprain, and sometimes after exposure to a strong draught of air. In the more chronic varieties of muscular rheumatism, there is often no very noticeable cause for it, excepting a rheumatic constitution of the patient, or imperfect clothing, or unusual coldness and wetness of the weather. Some people are liable to have an attack of rheumatic pain on any slight exposure to cold and wet.

Rheumatism of the Joints, or Rheumatic Gout. There are a good many varieties of rheumatic affection of the joints. Sometimes the smaller joints of the fingers and toes are most affected, and sometimes the larger ones, as the knees, elbows, hips, &c. Such affections connect rheumatism and gout by a chain of cases running from one to the other, rheumatism affecting rather the larger joints, and gout the smaller ones. The joints alone may be affected, being painful and tender, or the system may be, and generally is, disordered. There may be slight feverishness and loss of appetite, and also some indigestion. The urine is generally high coloured, and deposits a red or pink sediment. In many people the small joints are much swollen and distorted, in a way that is too familiar to need description. When the larger joints are affected, they, too, are much swollen and stiff, the movement of them is painful, and attended with a creaking sound or feeling, if the hand is placed over them when moving. We have explained in a former article that gout seems to depend on the presence of uric acid in the blood. Some acid of a similar nature would seem to be present in rheumatic gout; and we give opposite a suitable prescription for use in such cases.

Causes.—Rheumatism of the joints is very often a constitutional complaint. It is transmitted from sire to son, or from mother to child. But the constitutional tendency is greatly helped by other influences, of which we shall only mention the principal. Beer and porter drinking are prolific causes of rheumatism among the poor and hard-working, and it is astonishing how often and quickly improvement follows upon the abstention from these. Close confined atmosphere, and depressing influences, too, are likely to develop a rheumatic tendency, which might otherwise lie dormant. There are some cases of rheumatic gout distorting the smaller joints in younger people which seem to have affinity with scrofulous and weak states of the constitution. Of course the weather is a powerful agent in the production of rheumatism of the joints, especially if cold and damp are helped in their work by insufficient clothing and food. But rheumatic conditions of the joints, after all, do not attack the very destitute so much as those who are more freely supplied with beer than with other food, and who are much exposed to the weather, with insufficient exercise, such as cabmen, omnibus drivers, &c. Rheumatism of the joints, and the disorder of the system which generally attends it, may come on in two ways, either slowly and insidiously, or more or less quickly. Rheumatism is one of the forms of *age*, the muscles and joints losing their natural mobility, and becoming stiff. Occasionally this stiffness is great, and a mechanical result of the deposit around a joint of a bony-like material, which hinders the free play of the joints.

Treatment.—The treatment of rheumatism varies, according as the rheumatism affects the muscles or the joints, and relatively to the age of the patient, and the general state of health. We can only indicate a few general principles and remedies, and indeed the most of these will suggest themselves to those who have read our account of the *causes* of rheumatism. People of a rheumatic constitution may greatly save themselves by care in regard to a few particulars. First, the avoidance of exposure to cold, and especially to cold and wet together; flannel and other kinds of warm clothing being obviously proper. Their food, while it should be nourishing, should be simple. Beer and porter, as a rule, should be avoided—they are rheumatic drinks. When the patient can command a change of climate, one that is mild, uniform, and, above all dry, will be the best. For rheumatic pains in the muscles, as of the back or neck, the opium liniment of the Pharmacopœia may be rubbed in locally. Often one of the best remedies is to cover the affected part with a piece of flannel, and rub it over with a warm iron every night before going to bed.

If the pains are dull and aching and accompanied with thick urine, the following prescription may be tried:—

Bicarbonate of potash ...	one drachm.
Carbonate of ammonia ...	one scruple.
Water ...	8 ounces.

Mix. Two tablespoonfuls to be taken three times a day with as much water.

The same prescription is likely to be beneficial, and even more beneficial, in cases of rheumatic gout in the joints. In young subjects, who are weak and delicate, and even in older ones, cod-liver oil will often prove very beneficial; one or two teaspoonfuls may be taken twice a day. Sulphur has always enjoyed a considerable reputation as a remedy in rheumatism. It may be taken in the form of the following powder, which also contains guaiacum, another anti-rheumatic remedy of great reputation. The powder used to be well known under the name of the "Chelsea pensioner," and was considered good for the cure of chronic rheumatism, especially of the old standing cases, where the skin was dry and the bowels inactive.

Sulphur sublimed ...	two ounces.
Cream of tartar ...	one ounce.
Powdered rhubarb ...	two drachms.
Guaiacum resin ...	one drachm.
Honey ...	one pound.
One nutmeg reduced to powder.	

Mix thoroughly, and order two teaspoonfuls to be taken night and morning, until the whole is consumed.

But the great remedy for rheumatism is salicylic acid, or its salts. It should only be employed under the advice of a medical man.

ODDS AND ENDS.

Laundress's Starch.—To prepare the starch, put an ounce of wax in a saucepan containing about a pint and three-quarters of boiling water, and melt the wax over the fire. Then take off the saucepan, and allow it to stand for a few minutes. Half a pound of the best starch is then to be mixed up in a very small quantity of cold water, and gradually added to the contents of the saucepan. The whole is then to be boiled for about half an hour, the contents of the saucepan being continually stirred the whole time. This starch may be used quite cold; it is to be well rubbed into the fabrics to be starched, and afterwards all the superfluous starch is to be well wrung out. If any of the patent thin starches are used for this purpose, they must be employed while warm, otherwise the materials starched will have a greasy appearance when ironed. When the starched articles are dry, starch them again, and iron them out flat with a box-iron having a curved point, but without polishing them. To put a glossy surface on the fronts of shirts, it is necessary to have a smooth level board made of some hard wood, covered over by one layer only of cotton cloth. This is to be put inside the shirt, the starched portion is to be slightly damped with a sponge, and then gone over with a box-iron, the required gloss being given by means of the bevelled portion of the iron.

Steel Pens.—Half the steel pens which are thrown away might be rendered as good as new by dipping in ink, and wiping two or three times, and then scraping inside and outside carefully with an old penknife or scissors, or by boiling in hot water and soda. They simply cease to write well from being clogged with the impurities in which some inks abound more than others. Some persons consider they re-nib steel pens by deftly throwing them as one would throw a javelin in a bare floor or deal table. They must be thrown so as to stick upright in the wood. Three or four throws are sufficient to mend a pen. If not satisfactory, wipe, and throw again.

GARDENING.—XXXVI.

PLANNING FLOWER-GARDENS.

THE present style of garden in England is simply the Italian and French plans united, making much better gardens with a little English arrangement than either of the two in distinct forms. The Italian style may be seen in some of our old palace gardens, with its terraces and walls, and vases and fountains. Climbing plants trained on the walls, with vases on the top, if tastefully arranged, in large grounds, has not a bad effect.

The French style of gardening is partially copied from the Italian; but in France the gardening work is very much more copied now from the English.

The Dutch style is very stiff and inelegant, and may be recognised in the cutting and clipping into regular forms of box, holly, and other elegant trees; but nothing can be more out of the line of beauty, and nothing more inelegant or ungraceful, than this plan of destroying the graceful foliage of our garden shrubs and trees.

The English style of garden is considered to be an imitation of Nature, and therefore, when thoroughly English, we find neither terraces, vases, statues, nor cut evergreens. In some English gardens the whole surface is turf, with the plants arranged about it in beds; but an arrangement of this kind requires the greatest care and attention, and, after all, cannot be made so enjoyable as when the garden is divided into lawn and flower-garden; and even then, in laying them out, care must be taken to place the beds in a regular form, and to avoid having beds of flowers scattered about in any direction without any taste; but the arrangement of a garden has no precise rule, and must depend on circumstances, and, where possible, tasteful arrangements may be made with advantage.

Straight walks should, under all circumstances, be avoided. A lawn and shrubbery, with a path winding round a flower-garden, as represented at Fig. 3, with

additional beds of flowers, if there is space for them, make a very good garden for a moderate-sized villa. The flower-garden should be made of some geometrical figure, with box or turf edgings, and gravel paths; by this form the flowers can be reached and attended to without stepping on the beds, as in a large square parterre.

Fig. 1 represents a new plan for laying out an English flower-garden. At A we have steps leading from the house; B, flower-beds for standard roses; C, gravel paths; D, the lawn; E, beds for roses—the two lower ones for small, light-foliaged trees; F, flower-beds, with small trees; G, a gate leading to a kitchen-garden; H, alcove; I, kitchen-garden; K, beehives; L, rustic seat; M, borders for flowers and small trees; N, shrubbery and flower-beds.

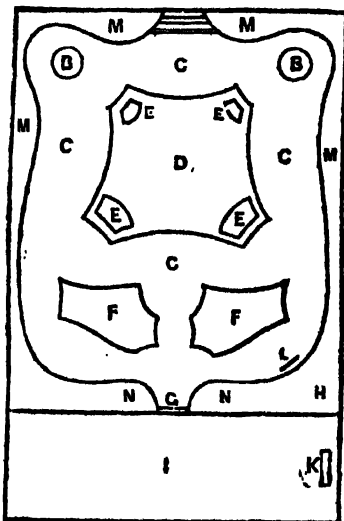


Fig. 1.

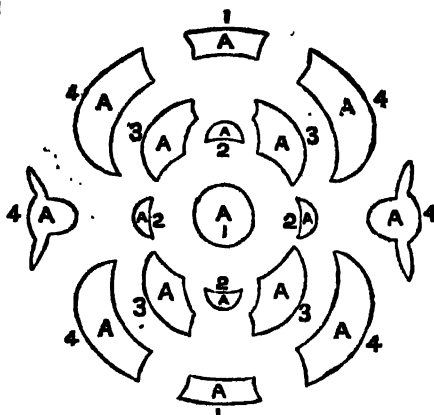


Fig. 2.

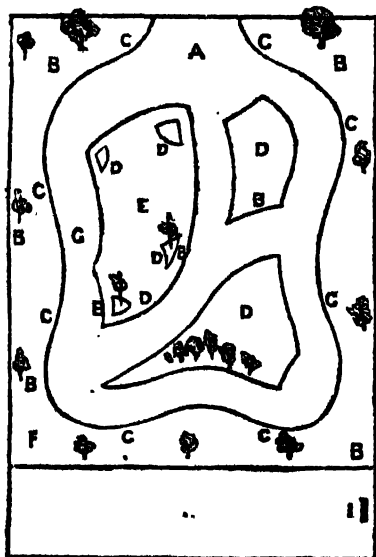


Fig. 4.

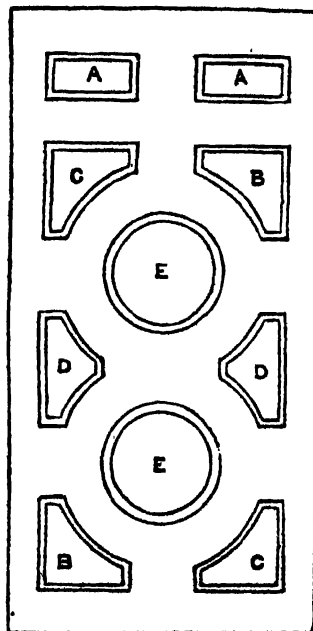


Fig. 6.

At Fig. 2 are the designs for flower-beds to be cut out of a large lawn. The beds are shown at A; the spaces are grass. A variety of flowers should be planted in these beds. The centre bed, No. 1, may be filled with roses; No. 2, white flowers; No. 3, blue flowers; No. 4, geraniums. These plans are English.

Fig. 3 is a geometrical flower-bed, to be filled with different flowers, either in pairs as directed, or fours. The centre is a rose-bed, A; B, for white flowers; C, dark lilac; D, white; E, lilac; F, yellow; G, scarlet. The beds should be planted with flowers, so as to keep it filled all the summer.

At Fig. 4 we have the plan of a garden,

which is a design similar to that at No. 2, but on a more extended scale, and yet more deceptive as to extent. In laying out this garden, particular attention must be paid to the clusters of shrubs and small trees being planted as directed, or the effect will be lost. Steps or back entrance at A; shrubs and rather high, graceful trees at B; flowers at C, in front of shrubs, all round the garden; D, flower-beds; E, the lawn; F, summer-house; G, rustic seat; H, kitchen-garden; I, beehives.

Fig. 5 represents a geometrical flower-bed, filled with different coloured flowers, and a fountain in the centre.

The beds at A are filled with pink roses; B, with white geraniums; C, with blue flowers; D, with mignonette; E, with rhododendrons and azaleas. It is called the tessellated flower-bed, and has a very imposing effect.

Fig. 6 represents a geometrical flower-bed, bordered with turf, and gravel walks. Beds of this design have been laid out in the following manner:—A, roses; B, geraniums; C, blue flowers; D, white flowers; E, yellow flowers. Fig. 7 represents the beds with the corners rounded.

Fig. 8 is a geometrical garden; beds bordered with turf,

APRIL AND MAY.

Beds.	Flowers.	Colour.
A	Anemone Apennina	blue
B	Arabis præcox	white
C	Cheiranthus Alpinus	yellow
D	Aubrietia purpurea	dark lilac
E	Alyssum saxatile	yellow
F	Iberis saxatile	white
G	Tulipa oculus solus	red and black
H	Polemonium mexicanum	blue
I	Vesicaria utriculatum	light yellow

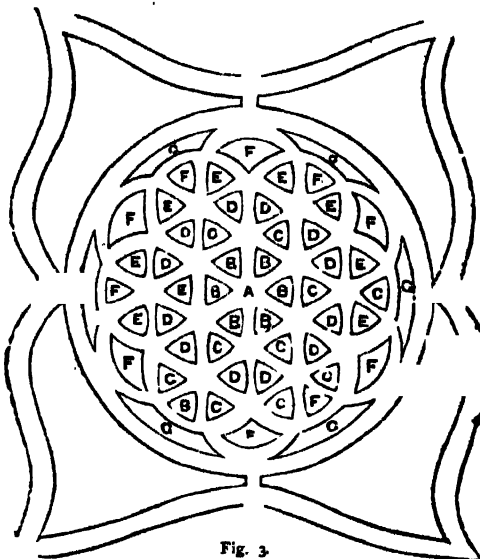


Fig. 3.

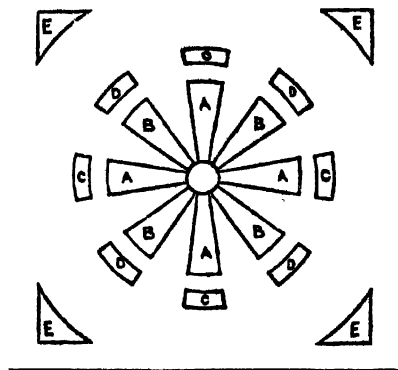


Fig. 5.

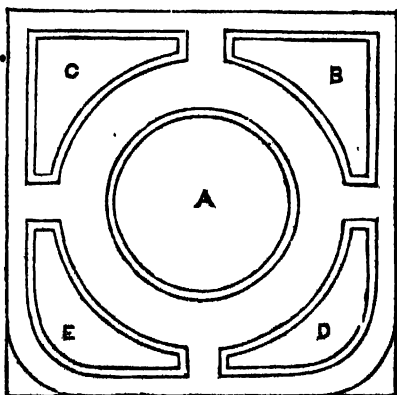


Fig. 7.

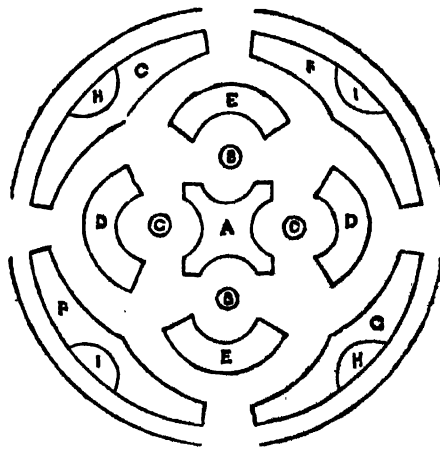


Fig. 8.

gravel walks. A, geraniums; B, mignonette; C, nemophila; D, white flowers; E, roses and carnations. The roses should be white, or nearly so.

A flower-bed as represented at Fig. 8 may be made to look well all the year by following the plan for flower succession as below:—

FLOWERS FOR FEBRUARY AND MARCH.

Beds.	Flowers.	Colour.
A	Heliborus niger	white and pink
B	Crocus reticulatus	blue
C	Erantia hiemalis	yellow
D	Galanthus plicatus	white
E	Narcissus minor	yellow
F	Erythronium Dens canis	light purple
G	Erythronium Dens canis albidum	white
H	Corydalis tuberosa	purple
I	Erythronium albidum	yellow

HARDY ANNUALS FOR APRIL AND MAY.

Beds.	Flowers.	Colour.
A	Silene pendula	pink
B	Nemophila atomaria	white
C	Nemophila insignis	blue
D	Echscholtzia crocea	orange yellow
E	Collinsia grandiflora	bluish purple
F	Collinsia bicolor	white and lilac
G	Clarkia pulchella alba	white
H	Clarkia pulchella	reddish purple
I	Erythronium Peroffskianum	orange yellow

MAY TO NOVEMBER.

Beds.	Flowers.	Colour.
A	Geranium, Lucia Rosa	rose
B	Verbena, Princess Royal	white
C	Verbena, Hieloise	dark lilac
D	Verbena, Perfection	white

Beds.	Flowers.	Colour.
EE Verbena, Duke d'Aumale	...	bluish lilac
FF Calceolaria viscosissima	...	yellow
GG Verbena, Robinson's Defiance	...	scarlet
HH Verbena, Mont Blanc	...	white
II Verbena, Walton's Emma	...	purple

DECEMBER AND JANUARY.

Pots of small evergreens, &c. &c.

If beds are cut on the lawn, they must be more distinct and divided than if laid out between gravel walks, from which a variety of forms may be planned. The vacancies between the beds, if grass, need not be so equally cut as if for gravel; but the latter is more durable—grass soon wears out, and besides, requires constant attention of cutting or mowing.

Geometrical plans for gardens are now very generally in use, even for the smallest gardens, although correctly they should be formed only where they are not seen in a general plan of lawn and shrubbery, or in large gardens, and for them there must be suitable arrangements made. If the flower-bed be round in the middle of a square, the four corners must be filled up; but it may be any other shape, and for the corners and outward beds, American plants, such as rhododendrons, azaleas, and roses, are effective; the plants should be low or dwarf next the path, and gradually rise in height at the back; and the largest portion of ground we can spare should be used for uniform figures, and all beyond it for permanently planted American plants, roses, and various kinds of evergreens.

In choosing flowers for the beds, variety is not the only thing to be thought of—colour is of great importance, and shades that will blend delicately one with the other should be selected.

The beds of geometrical gardens are in series of circles of six or eight, or of some equal number. When the figure is formed of six beds for the inner circle, and the outer of twelve beds, the best arrangement for colours of flowers is three of one colour and three of another; alternate white and violet for the centre six beds; the next row of six beds, yellow flowers; and the outer twelve beds, alternately red and blue, which will, in fact, form a row of each colour. But the arrangement depends greatly on taste, and it is best to have one colour in a circle, if the beds be irregular in form and size, as the uniformity is better preserved, and the variety quite sufficient.

When the frost has spoiled the flowers, the beds may be filled with pot-flowers and small evergreens; and to these flowers will succeed pots of crocuses, snowdrops, early tulips, hyacinths, narcissus, hepaticas, and other early blooming plants, which will serve to enliven the evergreens, and be doubly welcome as the first spring flowers; and there will be no necessity to disturb this arrangement until the time for geraniums, verbenas, heartsease, roses, calceolarias, mirmalus, and other dwarf flowers can be planted; and when a bed is thus arranged, it will look well all the year. The chief favourites for a flower garden are—roses, geraniums, heliotropes, mignonette, hydrangeas, peturias, verbenas, calceolarias, nemophilla, &c. &c., and a list will be given in its proper place; but for geometrical beds, many flowers are objectionable on account of their straggling growth; such are heliotropes, which are best suited for side borders; as also mignonette, hydrangeas, large geraniums, peturias, tall verbenas, and all plants that are likely to destroy the beauty of the design; and in planting flowers in geometrical beds, they must be even clipped to preserve uniformity. Many persons have a great antipathy to geometrical beds of flowers, but the formal unnatural appearance may always be relieved by the more naturally graceful plantations of flowers in the side beds, and path sides of clumps and shrubberies.

COOKERY.—LXXVI.

FRENCH DISHES (continued from p. 26).

Moules à la Poulette (Mussels cooked with Broth).—Clean the shells of some mussels, to remove any sea-weed or other matters that may be adherent, and wash them repeatedly in water. Put the fish in a stew-pan over a hot fire until the shells open. Then remove the mussels from the shells, and drain them on a sieve, preserving the liquor that passes through. Now place the fish in a stew-pan, with butter, together with parsley and chives well chopped up, and season with pepper and nutmeg. Put the pan over a gentle fire for a few minutes, then add sufficient flour to thicken the preparation, and pour in some stock broth and some of the juice that was strained from the mussels. Let it boil for a moment, and remove to the side of the fire, where it will keep hot without boiling. Beat up some yolks of eggs in it, and squeeze in the juice of a lemon.

Ragoût de Moules (Stewed Mussels).—Clean, cook, and strain some mussels, as directed for *moules à la poulette*. Then dress in butter, over a moderate fire, an onion, carrot, and some chopped mushrooms, with parsley and chives. Afterwards add a little flour, pepper, and nutmeg, with some white wine, and a little of the juice of the mussels. No salt must be added to this or the preceding preparation, owing to the salt contained in the juice obtained from the mussels being sufficient for the purpose. Add some good stock broth, or *jus*, to the other materials in the stewpan, boil them together, strain, and pour the liquid over the cooked mussels.

Ragoût de Champignons (Stewed Mushrooms).—Clean the mushrooms carefully, and cook them with butter, parsley, and chives, in a stewpan over a gentle fire. Then mix in a little flour, and afterwards add some good stock broth, or white wine and *jus*, and let it simmer for one hour. The *ragoût* is then to be mixed with butter and flour to thicken it. Morils may be employed for the same purpose; but, in that case, it is necessary to be very careful to remove every particle of sand that may adhere to them, by frequent washing with plenty of water.

Ragoût de Marrons (Stewed Chestnuts).—Fry some chestnuts in butter, and remove the rind from them. Then boil them in a little good white wine, mixed with stock broth, *jus*, or *fonds de cuisson*. The chestnuts should be removed from the stewpan as soon as they are cooked, and the liquid then boiled down to the proper consistence. When ready, it is sent to table with the chestnuts in it.

Godiveau (Forcemeat for Meat Pies and Ragoûts).—Remove the sinews and gristle from a piece of fillet of veal, and mince it up small, with the same quantity of beef-suet. Then mix the mince-meat together, with some chives and parsley, previously chopped up, and add mixed spice and salt. Beat them all together in a mortar, with a sufficient quantity of raw eggs to form them into a mass and a little water to soften it. *Godiveau* may also be employed for stuffing; but, in this case, it should be prepared without the eggs.

Oignons Glacés (Glazed Onions).—Cut off the stems and roots from some freshly-gathered onions, and cook them in a stewpan with butter and sugar until they are browned. Moisten them with strong stock broth, and boil down, until the liquid is reduced to three-fourths of its previous quantity. Then remove the stewpan farther from the fire, and keep it at a moderate temperature until the onions are covered with glaze.

Ragoût à la Morue.—Boil some thin slices of bacon, and about a dozen small sausages. Then cook mushrooms, chestnuts, and forcemeat balls in some wine and stock broth, and boil down the liquid to a proper consistence, and pour it over the meat. Before sending to table add some spoonfuls of *fonds de cuisson*, if you have it by you.
Concombre Farcis (Stuffed Cucumbers).—

cucumbers, make an opening in each of them, and remove the inside with a spoon, and fill up the space thus produced with forcemeat. Replace the piece cut away over the opening, and place the cucumbers in a stewpan, the bottom of which has been covered with slices of meat and bacon. Then lay over the vegetables more slices of bacon, with onions, carrots, pepper, and nutmeg, and make them moist with stock broth. Place the stewpan over a gentle fire until the cucumbers feel soft when touched with the finger. When ready for table, drain, and pour over them some *jus au vin* which has been boiled down to a proper consistence.

Ragoût de Ris de Veau (Veal Sweetbread Stewed).—Boil down (as much as possible without injuring the preparation by the heat) about twelve mushrooms in two glasses of white wine, a spoonful of tomato marmalade and a little jelly being added. When this has been done, put into the stewpan a glassful of *fonds de cuisson* of fowls, or some *jus bland*; or, if neither of these are at hand, twice that quantity of good stock broth: and again boil down to the consistence of a sauce, and add to them the sweetbread, cooked by itself and cut into pieces, and also some *quenelles*.

Bœuf Bouilli en Quenelles (Forcemeat Balls made of Boiled Beef).—Mince some beef very small, with cooked potatoes, and parsley, chives, thyme, and similar herbs, according to taste. Mix them well together, and make into a paste with butter or dripping and raw eggs. Roll it into balls, and dress in a pan with butter. This preparation may be served either by itself or with sauce.

Hachis de Bœuf Bouilli (Minced Beef Boiled).—Mince very small some onions with thyme, parsley, chives, and tarragon, and put them in a stewpan, with butter, over a gentle fire until partially cooked. Mix them with half a spoonful of flour, and let them become brown. Add to them, pepper, salt, half a glass of white wine, and some stock broth. When sufficiently done, put into the pan a sufficient quantity of beef finely minced, and let it simmer at a gentle heat for half an hour. Before sending to table mix with it a spoonful of mustard.

Essence d'Assaisonnement (Essence of Herbs for Seasoning Sauces, and similar purposes).—Pour into an earthenware pan half a bottle of vinegar, one bottle of white wine, and the juice expressed from four lemons. Also add half a pound of salt, two ounces of pepper, and one drachm each of nutmeg, cloves, mace, basil, and thyme, together with an ounce of dried parsley. Make the vessel hot until it is about to boil, and then put the cover on the vessel, and keep it at the same temperature for seven or eight hours. Strain the clear liquid through a jelly bag, and squeeze it, to express as much of the fluid as possible. Then filter it through blotting-paper, or linen, and preserve the liquid in small well-stoppered vessels.

Ragoût de Laitances (Ragoût of Fish Melts).—Wash the melts in cold water, and then steep them in boiling water to which some vinegar has been added. Remove the melts from the water, dry them on a cloth, and cook them for a quarter of an hour with parsley, chives, salt, and pepper, in half a glassful of stock broth, and the same quantity of white wine, mixed with a few spoonfuls of *blanc de veau*. Take out the melts when cooked, and evaporate the liquid in which they were cooked to the consistence of a sauce, and thicken it with two ounces of butter, mixed with a little flour. Before sending this dish to table, remember to squeeze the juice of a lemon into it.

The *ragoût de laitances* may also be prepared by another method. Cut into small pieces two onions, one carrot, and half a parsnip, fry them with butter with parsley, chives, pepper, salt, and nutmeg. When nearly ready, add a little flour, and mix it well with the other materials. Afterwards pour a sufficient quantity of *Amillon* (a mixture of water, and half a glassful of white wine. Boil

the materials in a stewpan over a steady fire until they are reduced to half. Now strain off the clear liquid, and simmer the melts in it for about twenty minutes. When about to send to table mix with it the yolks of two eggs beat up with cream; simmer the whole at a gentle heat, to thicken it; and add the juice of a lemon.

Ragoût de Foies Gras (Ragoût of Fat Livers).—Clean the livers of fattened geese, and let them steep in plenty of cold water; then place in hot water for a short time. Remove the livers, and put them in a stewpan, with equal quantities of *jus*, white wine, and stock broth. Season them with parsley, chives, pepper, and nutmeg. Very little, if any, salt should be added, owing to the quantity already contained in the stock broth and *jus*. Simmer the livers for half an hour, and then remove them from the stewpan, and evaporate the liquids to the consistence of sauce.

It will be as well to mention that this and other *ragoûts* may not only be employed at table for garnishing, but also as separate dishes. It is then usual to add, immediately before serving, some yolks of eggs beat up with cream.

Ragoût de Ris de Veau (Veal Sweetbread in Ragoût).—This dish may be prepared in the same manner as the *ragoût de foies gras*, but it is better to mix the sweetbreads with livers, mushrooms, artichokes, &c.

Ragoût Mêlé (Mixed Ragoût).—Blanch some artichokes, cut them up, with mushrooms, and place them in a stewpan with the livers of fat geese and the combs and kidneys of poultry, and proceed as directed for *ragoût de foies gras*.

Pâté à Frire.—Beat up a mixture of four ounces of flour, the same number of the yolks of eggs, with salt, pepper, and sufficient beer or sweet white wine to render it of the proper consistence, without being too thick or too thin. Before using mix with it the white of an egg beat into a froth.

Marinade (Fried Vegetables Cooked in Vinegar).—Cut two onions and a carrot into slices, add the usual seasoning of thyme, parsley, basil, and other herbs cut up small, and fry them in butter. When these vegetables are cooked sufficiently, add a little flour, and then a glassful of broth, and half that quantity of vinegar. Put in salt, pepper, and some spice; simmer for an hour at a gentle heat, and strain.

HOUSEHOLD DECORATIVE ART.—LI.

PAPIER-MÂCHÉ WORK (continued from p. 90).

To produce Plain Pearl Ornaments upon a Stained Pearl Ground.—It is frequently desirable to represent ornaments of the natural colour of the pearl upon a ground of brilliant blue, red, or some other tint. Fig. 1 would be a suitable example for this kind of work. To perform this the whole surface of the inlaid pearl on which the device has to be shown must be painted over with transparent colour of the desired tint. This colour, represented by the shaded parts in the figure, is allowed to remain, say for the space of an hour or two, till it has become tolerably dry; a pencil is then taken, and the device is painted upon the pearl in ordinary oil-colour, white being the one usually employed. Two or three hours are allowed to elapse for the oil to soften the varnish-colour beneath it, and when the latter has become thoroughly soft, a piece of cotton wool is taken and wiped over the surface; this brings off the white paint and the pigment beneath it, leaving the face of the pearl exposed in the device drawn in the oil white. By this means very intricate pearl ornaments upon a coloured ground may be executed with comparatively little trouble, less time will be consumed, the effect will be better, and the ground tint more even than it would have been had the

latter itself been painted in after the device had been drawn.

Bright Gilding on Papier-mâché.—In most papier-mâché work, the ultimate effect of the object will greatly depend on the beauty of the gold ornaments with which it is enriched. Gold is rarely or never placed over pearl, but upon the black varnish, and upon the smoothness and brightness of the latter the brilliancy of the gold will depend; the surface must therefore be well polished before gilding. For "bright gilding," boil a few shreds of isinglass in half a pint of water, and with this, when cold, go over those parts of the work which are to be covered with gold ornaments. When well wetted it will be ready to receive the gold-leaf. In our articles on "Illuminating" we spoke at full length of the different descriptions of gold-leaf, its cost, and the form in which it is to be procured, and gave much information with regard to the processes of gilding. To these articles we would now refer the reader. We mentioned in that place that an instrument called a "tip," consisting of a thin flat row of camel-hair fixed between two pieces of card, was much used in gilding. With this instrument a whole or a half leaf of gold, according to the size of the space to be ornamented, should be taken tip, and laid carefully on the wetted surface, more gold-leaf being laid on until the whole is covered. As the solution of isinglass dries, the gold, which was previously dull, will begin to shine. When all appears

hour or so in a warm place and has become dry, wet a piece of cotton wool, and with it rub off the superfluous gold—namely, all that is not covered with the asphaltum, which protects the gold beneath it from the moisture. The covering of Brunswick black will next have to be removed from the ornaments, and this may be done by dipping a piece of cotton wool in turpentine, and rubbing it over the work. Two or three washings with turpentine will be necessary before the gold will appear perfectly bright and clean; when it does so it may be further polished with cotton wool and a little dry whitening, lightly used. By this method the most intricate design and the most delicate lines in burnished gold may be readily executed. A variety of tints of gold as well as silver leaf may be applied in the same manner. The above process is technically known as "bright gilding."

Dead Gilding.—Dead gilding, on the contrary, is commonly accomplished by the "oil gilding" process, which is really done with gold-size, and in this the leaf is applied to an almost dry ground. Dead gilding looks very well in combination with bright gilding, and it may, for the sake of variety, be executed in a different shade of gold. Japanners' gold-leaf is of two colours—"deep" and "pale;" the former being alloyed with copper, the latter with silver. Both these kinds are frequently used upon the same work, for the sake of variety. In dead gilding a gold-size is employed, mixed

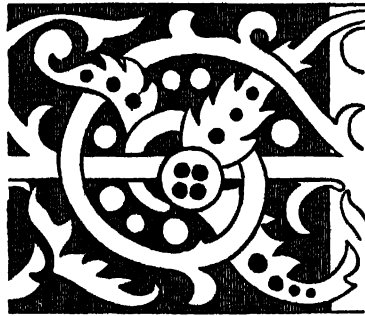


Fig. 1.



Fig. 2.

to be perfectly dry, breathe on the surface of the gold, and press it gently down with a piece of cotton wool; then warm the article slightly, to evaporate any moisture which may possibly remain, and rub the gold lightly over with dry cotton wool, which will cause it to assume great brilliancy.

We have now a broad strip of gilding, according to the device we have to execute; the next object will be to form it into ornaments. To do this the pattern must be transferred to the surface of the gold in the manner recommended for transferring it to pearl. The devices intended to remain in gold will then have to be drawn upon the gilding in asphaltum, or, as it is more commonly called, "Brunswick black." When this has stood for an

with a proportion of chrome yellow, which is made use of for two reasons. In dead gilding the design has to be pencilled upon the black background, and the gold-size being nearly transparent, there would be a difficulty in seeing the shades of the pencil, without the chrome yellow; and, besides this, the yellow size has the effect of concealing any little flaw or imperfection which may occur in the gold-leaf laid upon it. A little linseed oil is often added to the gold-size, to prevent the work drying too quickly. After the gold-size has been laid upon the ground, it is allowed to remain till it has become almost dry, and is only slightly tacky; the leaf-gold is then laid on, pressed down with cotton wool, and the superfluous gold then dusted off.

Silver-leaf may be applied in this work in precisely the same manner as gold, but it is less beautiful, and therefore less freely used than the latter. Indeed, its principal value will be found to be as a background for transparent colours, and as a means of imparting a brilliancy to the work not otherwise to be obtained, except by the use of pearl.

As an example of a subject in which silver-leaf may be used and afterwards painted over, we would instance the eyes in a peacock's tail; though the stained windows of a cathedral—of which we spoke as a good subject for painting on pearl—may also be rendered very effectively in this material. Gold powders may be used in dead gilding in almost precisely the same manner as leaf-gold, as may also bronze powders, which may be procured in a variety of shades. For bright gilding only, plain and simple Greek patterns look exceedingly well; and where a variety of colours and a mixture of kinds of gilding are used, mediæval and arabesque designs will be found most suitable. The Elizabethan style, with its elaborate cartouches and intricate scroll-work, is also exceedingly well adapted to be carried out in gold of two shades, makes admirable borders for buildings, &c., and is not very difficult of execution. Massive gold ornaments may be shaded with "wash black," which is a mixture of a little "best black" with copal varnish. Chinese and Japanese patterns, though frequently very beautiful in themselves, and admirably adapted to the material, can scarcely be recommended to the amateur, since they require a delicacy, and skill in pencilling, which can scarcely be attained by any but the professed workman. Articles in papier-mâché are often seen decorated

with flowers of singular softness and beauty. They are now painted in the ordinary colours, but formerly were executed in the following manner:—The flower—say, for example, a rose—is first laid in flat with flake white, to which two or three drops of oil have been added to prevent its drying too quickly. When moderately dry, fine powdered colours must be dusted upon this ground with a short and pretty thick pencil; and when perfectly dry the back petals are first painted in with a coat of the same white, and dusted in with powdered colour, and thus may be shaded off with extreme delicacy. When the first petals are dry others are painted, and the work thus proceeds till the whole flower is finished; leaves, stems, and indeed every part, being laid in and coloured by the same method; various-sized camel-hair pencils being used, according to the delicacy of the work. Instead of powdered colour, bronze powder may be used for ornamental work in almost the same way, and this requires no skill in "pencilling," but only ordinary ingenuity. In this case the ground must be laid in with gold size, instead of flake white; and for repeating patterns, such as that given in Fig. 2, a kind of stencilling may be made use of, by which much time may be saved. In Figs. 3 to 8 are shown the different stencil-plates (which are merely apertures cut in a piece of writing paper) required for executing this design. In this work, if any part of the design is intended to be in a flat mass of bronze,

this should be sized by itself, and when nearly dry bronze of the particular shade required should be rubbed in with a little wash-leather rubber. Cotton wool should be avoided, as the filaments are apt to stick in the work. If, for instance, the amateur desires to represent in bronze stencilling the conventional wild rose (Fig. 2), he should first trace each distinct part on a separate piece of paper, and cut out the form with a sharp knife, thus A (Fig. 2) being traced and cut out would form the stencil-plate A (Fig. 3). In like manner B, C, D, would form the stencil-plates B, C, D (Figs. 4, 5, and 6), and so on, until stencil-plates of all parts of the flower, stems, &c., are made. Then the ground being sized all over, and allowed to remain until just sticky, the plate of the centre of the flower B (Fig. 5) would be laid in position, and the bronze powder rubbed through with the wash-leather rubber. In like manner, the turnovers of the petals, A, A, A, A, A, would be made by rubbing bronze through the stencil-plate (Fig. 3), and the stems and fibres of the leaves next. When all the light or solid parts are rubbed in, the stencil-plate D (Fig. 6) may be laid on the positions required for the petals, D, D, D, D, and then with a dry camel-hair pencil the bronze will

be dusted through, so as to make the petals light in the middle and shaded off towards the centre and the turnovers. Here we would caution the amateur to be careful to use very little bronze in the camel-hair pencil, as it is easy

to make any part lighter, but if he gets too much bronze on the work he will not be able to soften down the lights sufficiently. In the same manner he will dust in the leaves E, F, G, beginning at their outer edges, and shading off towards

the fibres in the middle. From the foregoing it will be seen that in this kind of decoration (which is applicable to all dark smooth surfaces as well as to papier-mâché and japanned ware), that a little care and ingenuity only are required to produce a very pleasing effect.

Specimens of this work may be often seen on old English papier-mâché work, and also upon some of the Japanese ware, which has of late been so fashionable. We may perhaps here remark that if extra strength of light be required it may be obtained by dipping a "stumper" (made by cutting off a camel-hair pencil just below the quill) in gold powder or bronze, and "stumping" in the parts required to be extra light. If in this kind of ornamentation dead gilding is desired, it must either be done first, or, should the patterns not admit of this, the gold-size on the background must be allowed to get perfectly dry before the leaf is applied, and, to prevent it from sticking on any other than the desired parts, powdered whitening should be rubbed over the whole. The gilding itself may then be done with gold-size and chrome yellow as directed above. Without this precaution the leaf would probably adhere to those parts of the surface partially covered with bronze. A "pencil bronze," useful for putting in lines in bronze ornaments executed as above, and also for touching up, may be made by mixing bronze powder and gold size into a paint; and with the addition of colour to this mixture a number of brilliant and effective tints may be produced.



Fig. 3.

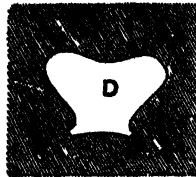


Fig. 6.



Fig. 7.

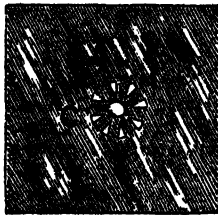


Fig. 4.

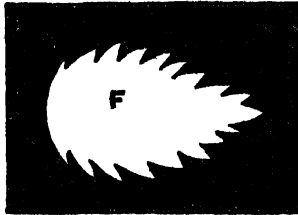


Fig. 8.

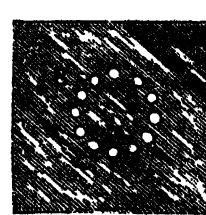


Fig. 5.

"Pencil bronze" would be useful to put in the fibres of leaves, &c.

Final Varnishing.—After the ornamentation—whether it be pearl, gold, or colour, or a combination of these—is finished, it must be protected by varnish. If the whole surface of the article is elaborately enriched, and almost covered with ornament, the better plan will be to take a broad, flat brush, and with this to cover the entire surface with a thin coat of copal varnish; but if the ornaments are scattered, and much of the background of black varnish appears between them, it will be advisable with a fine pencil to lay the varnish over the decorative parts only, for the black varnish polishes better than the copal, and should not be loaded with it unnecessarily. After varnishing and well drying, the article will require to be very lightly rubbed over with wet rotten-stone, and finally to be polished with the palm of the hand, moistened with a little sweet oil, which will give a brilliancy of surface which is not to be equalled by any other method. It would seem almost needless for us to enlarge upon the uses to which papier-mâché work is and may be applied. They are almost endless, and are known to every one. The amateur, when he has acquired this art, will have no difficulty in finding subjects to which to apply it, and we may mention that all the methods of decoration we have described will be found equally applicable to articles formed of iron.

THE SICK-ROOM AND NURSE.—III.

"SURGICAL COOKERY."

In addition to cooking food for the sick, there falls to the share of the nurse another description of work, called by the late Dr. Abernethy "surgical cookery." The making and application of poultices, fomentations, ointment, &c., come under this head, and form a very essential branch of domestic knowledge. It is too late, when such remedies are ordered by a medical man, to begin by asking one's self how the directions are to be carried out. Every female head of a household should consider herself liable to be called upon to become a nurse, and as such should acquire some information as to the probable nature of her duties. If opportunity for such learning has been denied her, the novice should unhesitatingly confess her ignorance to the doctor in attendance, and ascertain from him the best mode of proceeding.

The following directions may suffice to meet common requirements in a sick-room.

Poultices.—These applications are used externally, to soothe pain and allay inflammation. If well made, poultices are a great comfort to a sufferer; but if ill made they are more likely to do harm than good. The chief object in making a poultice is to have the substance thoroughly saturated with moisture without being sloppy. A good poultice is, in fact, a "local tepid bath," and works its good effects by means of gentle evaporation. On this account the patient should be kept in bed, to prevent the possibility of a chill from draughts of cold air. The bread-and-water poultice is one of the best kind, and is in most general use. To make a bread poultice, place a basin in an oven or beside a fire till quite hot, then break into it the required quantity of coarse bread crumbs (without crust); cover the crumbs with boiling water, and set a plate on the top till the bread has soaked up as much water as it will take. Strain the water off, and the bread will be in a pulpy state. Have ready a piece of old linen, and spread the poultice on it about one inch thick. The poultice, or bread plaister, may then be applied, whilst considerably warm, to the affected spot. A dry piece of flannel should be folded several times and placed over the poultice, surmounting the wrap by a piece of oiled silk or gutta-percha cloth, to retain the moisture and heat. A bandage to keep the whole in place com-

pletes the work. If it be necessary to continue the application for any length of time, and the patient is not able to bear the fatigue of a complete change, the outer wrappings may be removed and the bread moistened by squeezing a sponge filled with hot water outside the rag covering the bread. Care must be taken not to pour on more water than the bread will readily imbibe. In order to prevent the drying of a bread poultice, some people recommend that a certain quantity of grease should be added to the bread crumbs; but the effect is not the same. Evaporation is the object aimed at in applying a poultice, not greasy moisture. A bread poultice is the vehicle for numerous kinds of decoctions of herbs, vegetables, &c. The addition of laudanum, if required, should be made just before the poultice is laid on.

Linseed-meal Poultices should be made of powdered linseed. The basin in which the poultice is mixed should be made quite hot, as described above. Pour in some boiling water, then add some linseed powder; the latter should be stirred round with a piece of firewood till it has become well mixed. Continue adding hot water and meal alternately, stirring all the while, until the mixture is nearly thick enough; then beat it with a broad-bladed knife till the poultice is perfectly firm and free from lumps. Have ready a piece of old linen folded double, large enough to cover the surface of the affected spot; spread the linseed about the fourth of an inch thick on the linen; lay the poultice in front of a fire, if the weather be cold, and place a piece of lard about the size of a hazel nut in the middle. When the lard begins to melt, gently spread the grease over the top of the poultice. It is then fit for application, and is a first-rate remedy. When it is desired to make linseed poultices very stimulating, add half a pint of yeast to a pound of linseed meal. The yeast should be previously heated over a fire, stirring it all the time to prevent burning.

Bran Poultices are an invaluable remedy when a large surface of the body is affected, as in rheumatism and lumbago, or when cases of internal inflammation occur. For this purpose two flannel bags should be made ready, large enough to cover the seat of pain—two bags are necessary, because the poultice requires frequent change, and one must not be removed before another is ready to apply immediately. Bran also speedily becomes sour, and emits an unpleasant odour, a circumstance at all times to be guarded against in a sick-room. The best plan to moisten the bran is to place the necessary quantity in a colander over which has been previously spread a piece of muslin. Pour boiling water over the bran, squeeze the superfluous moisture out with a wooden spoon, and, when sufficiently drained, turn the bran into the flannel bag. If, in the process of draining, the bran has become cool, place the bag of bran in front of the fire for a few minutes before applying the poultice. The bag should not be more than one-third full of bran, as the weight would be inconveniently heavy. A piece of oiled silk or waterproof cloth should be laid on the top, as already described. It is not always necessary to re-moisten the bran with hot water. By placing the poultice last removed in a slow oven, provided sufficient moisture is still retained in the bran, the purpose will be answered; or, by putting the bag and poultice into an ordinary steamer over a saucepan of hot water the end would be the same.

Mustard Poultices are in such general esteem that their value requires no comment. A simple mustard poultice is made by adding one-third of flour to two-thirds of ordinary mustard. If it is desired to make the mustard act more quickly, some vinegar, more or less in quantity according to the size of the poultice, should be added boiling hot. The poultice should then be spread about half an inch thick between a piece of old muslin, and applied whilst hot. Some people merely spread the mustard on a piece of brown paper, without placing any

substance next the skin; but the latter mode is an error, as sponging or scraping is afterwards necessary to remove the mustard, in order to prevent blistering. About twenty minutes is generally long enough to bear a mustard poultice; less time if the skin of a child is concerned. About four or five minutes for the latter is usually long enough. Any moisture that may be left on the skin should be dabbed off gently with an old silk or cambric handkerchief. The spot whence the poultice has been removed should be kept covered for some hours with a soft, light covering.

Blistering is a more active means of irritating the skin than by applying poultices, and is seldom resorted to in the treatment of very young children. With the ordinary blister the nurse has usually nothing to do beyond applying it as directed by the medical man; but in the dressing which follows some amount of care and intelligence are needed on her part to prevent after-troubles. The best time for placing on a blister is at bed-time, or at the time when the patient is likely to enjoy the longest period of sleep. In most instances twelve hours is about the usual time for a blister to be worn by an adult. If the skin is very sensitive, a sheet of tissue paper may be laid over the blister, the nurse having previously, with her finger, pressed the paper on the plaister till it is thoroughly saturated with the oil contained in it. It should then be immediately applied, and afterwards kept in its place by being bandaged with a piece of old linen or handkerchief. When about to proceed to dress the blister the nurse should provide herself with a pair of sharp scissors, an old cambric handkerchief, and a piece of old linen or lint fully the size of the spot covered by the blister. She should also have a sponge at hand previously squeezed almost dry through warm water. If the skin is very much raised in several places, the nurse should choose the bladder nearest the bottom of the blister to let out the water. This is done by making a snip with the point of the scissors about half an inch long or rather less. The sponge should be placed under the spot snipped for the water to flow into it. By gently pressing the remaining blisters in the direction of the lower one the whole surface skin may generally be preserved unbroken, and the blister effectually emptied. This is very desirable, as the healing of the sore is facilitated by the scarf skin forming a covering; the unsightliness of the wound when healed is likewise thus prevented. When all the water has been removed from beneath the skin, a piece of lint covered with spermaceti ointment should be laid over the spot, and a folded soft cloth on the top. At the expiration of a few hours, if more fluid has formed, the dressing must be repeated, avoiding, if possible, fresh snipping of the skin. Fresh lint and spermaceti will be required for each dressing. In some cases the skin is disposed to slough, and either poultices may become necessary, or the application of spirits of wine and turpentine, on cotton wadding. The latter is generally effectual. Two or three thicknesses—the glazed side uppermost—should be laid over the sore places, and not removed for at least twenty-four hours. A medical man, if in attendance, should be acquainted with the exact appearance of the wound after a blister is removed, and during the progress of healing, as sometimes rather serious consequences occur, if proper attention is not given to the dressing.

Cooling Lotions and Washes require the opposite treatment of blisters and poultices. The linen on which the former are applied should be left freely exposed to the air. A single thickness is sufficient for this purpose, and directly the lotion has evaporated the linen should be saturated afresh. Instead of removing the rag, it is a better plan to gently squeeze a sponge containing the lotion over the spot. Plain cold water, vinegar and brandy, or laudanum, Goulard water, and spirits of wine are the lotions in most general use.

THE Bouquet de la Reine, or Queen's Bouquet, is prepared by dissolving the following essential oils and essences in two hundred and twenty parts of rectified spirits of wine:—Oil of bergamot, five parts; essence of jasmine, six parts; essence of ambergris, essence of musk, and the best oil of English lavender, four parts of each; oil of neroli, two parts; and of the oils of cloves and verberna, one part each.

Another perfume of the same name consists of five parts of oil of bergamot, two parts of best English oil of lavender, and one part each of the strongest aromatic vinegar, essence of musk, and oil of cloves, dissolved in forty-eight parts of rectified spirits of wine. Both of the forms given will be found to produce very agreeable perfumes, and which are much esteemed. Much of their distinctive character is due to the bergamot they contain.

Another pleasant scent, which also contains a large quantity of bergamot in its composition, is the *Esprit de Bergamote*. It consists of one drachm of the best oil of bergamot, fifteen drops of essence of ambergris, and seven drops each of the essence of musk, oil of rose geranium, and oil of verberna, dissolved in four ounces of rectified spirits of wine.

That well-known scent called *Frangipanni* is composed of forty parts each of essence of orris root and violets; twenty parts each of the essences of vanilla, rose, and neroli; ten parts of the essence of tonquin beans, and five parts each of the essences of sandalwood and musk, together with a very minute proportion of oil of cloves.

The *Albion Nougay* is another well-known scent; it owes its perfume chiefly to the large quantity of essence of roses it contains. It consists of forty parts of the essence of roses—that obtained by enfleurage being the best for this purpose—ten parts of the essence of orris root, half that quantity of the essence of vanilla; two and a half parts each of the essences of castor and musk; and one part of oil of bergamot.

That celebrated perfume the *Eau de Cologne*, or Water of Cologne, may be prepared either by distillation or by merely dissolving the materials employed in rectified spirits of wine. When *eau de Cologne* is prepared by the latter method, great care must be taken that the essential oils employed have been recently prepared, and that they are free from colour, in order that the perfume may be as fragrant as possible, and perfectly limpid, like water. It is also necessary that the spirit employed shall be perfectly free from any unpleasant smell which it may have acquired during its manufacture. Although a very good preparation can be obtained in this way, yet when made by distillation this perfume possesses a superior fragrance, and is also entirely free from any slight tinge of colour which it is apt to have when prepared by the other method.

An excellent form of *eau de Cologne* may be thus prepared:—Take two drachms of the seeds of the lesser cardamom, and put them into a still with two quarts of rectified spirits of wine, and add twenty-four drops of each of the following oils: bergamot, lemon, orange, neroli, rosemary, and cedrat; allow them to remain for a few days, and then distil three pints of perfume. Sometimes a stronger preparation is made by employing half the quantity of spirit to the same quantity of materials. This preparation may also be made by omitting the seeds, and dissolving the oils in the spirit without distillation. In this case the perfume will be improved by allowing the *eau de Cologne* when made to remain at rest in a cool place, such as a dry wine cellar, for two or three months before being used.

A good kind of *eau de Cologne* is thus prepared:—Take a quarter of an ounce of the oils of lemon and

bergamot, and half that quantity of oil of orange peel, half a drachm of oil of rosemary, and forty drops of the oil of neroli, and dissolve them in one pint of rectified spirits of wine. This preparation will be much improved by the addition of a few drops of the essences of musk and ambergris.

A very superior kind of *eau de Cologne* may be manufactured by distilling thirty drops of each of the oils of orange peel, bergamot, and rosemary, dissolved in half a pint of rectified spirits of wine, with thirty grains of cardamom seeds, and half a pint of orange-flower water. The materials are mixed together, and allowed to remain for a few days before distillation, and then half a pint of the perfume is to be distilled from them. This perfume may also be obtained by dissolving the oils mentioned, together with half the quantity of the oil of neroli, in the spirit, and allowing them to remain a few days before use.

Another form for preparing *eau de Cologne*, directs the employment of *eau de mélisse des carmes*, three pints, and the same quantity of compound spirit of balm, one quart of spirits of rosemary, three ounces each of the oils of cedrat, lemon, and bergamot, half that quantity of the oils of lavender, neroli, and rosemary, and three-quarters of an ounce of the oil of cinnamon; the whole to be dissolved in three gallons of rectified spirits of wine. The form now given is that of the Paris Codex, and the materials are directed to be digested for eight days, and then three gallons distilled.

An excellent kind of *eau de Cologne* may be prepared, which is scented principally with bergamot, as in the following recipe:—Take one drachm of the oil of bergamot, dissolve it in half a pint of rectified spirits of wine, and add eight drops of the oil of lemons, four drops each of neroli and rosemary, six drops of the oil of cedrat, and a drop and a half of the oil of balm.

The *Eau de Mélisse des Carmes*, or Balm Water, which has been previously mentioned, is a very old perfume, which at one time was in very great repute. It is prepared with a pound and a half of balm tops in flower, four ounces of lemon peel, and two ounces each of crushed cinnamon, nutmegs, and cloves, together with one ounce of Angelica root, the same quantity of coriander, and five and a half pints of rectified spirits of wine. The materials are to be digested in the spirit for eight days, and then distilled in a vessel surrounded by hot water, the process being kept up until the whole of the spirit has been evaporated off, and the materials have become dry.

Eau Incomparable, or Water that Cannot be Excelled, is another well-known perfume. It is thus prepared:—Take one drachm of the oil of lemons, forty-five drops of the oil of bergamot, thirty drops of the oil of cedrat, fifteen drops of oil of rosemary, and eight of English lavender, dissolved in one pint of rectified spirits of wine. The scent of this preparation may be improved by the addition of a few ounces of water, and then distilling a pint of the fluid.

The *Eau d'Esprit de Myrte*, commonly known as Myrtle Water or Spirit, is prepared by digesting about half a pound of the tops of myrtle, gathered when in flower, in two pints of rectified spirits of wine and a little water, for about a week; then the materials are placed in a still, half a pound of common salt is added, and two pints of the perfume distilled over. Occasionally other scents are added to this perfume, to render it stronger.

An agreeable perfume, called the *Eau de Marchale*, may be made with half an ounce of the essence of violets, one drachm of the oil of cloves, the same quantity of oil of bergamot, dissolved in half a pint of rectified spirit, and five ounces of orange-flower water being afterwards added.

The *Excelsior Perfume*, a fragrant compound, consists of one ounce each of the essences of jasmine, rose, orange, and cassia; half an ounce of the essence of vanilla, two

drachms of the essence of civet, and a drop and a half of the bitter oil of almonds.

Eau d'Ispahan is composed of two drachms of the oil of the bitter orange, fifteen drops of rosemary, eight drops each of the oils of neroli and cloves, four drops of oil of cassia, and the same quantity of oil of spearmint, mixed with seventeen ounces and a half of rectified spirits of wine. When the oils are dissolved, add two and a half ounces of rose water.

Eau de Bouquet consists of essence of violets and spirits of rosemary, half an ounce each; essence of jasmine, half a drachm, and the same quantity of oil of bergamot; oil of verbena, fifteen drops, and the same quantity of oil of English lavender, with fifteen ounces of rectified spirits of wine. When the whole are dissolved, add five ounces of strong rose water, and half an ounce of orange-flower water.

The preparation known under the names of *Eau de Beauté* and *Eau d'Élégance* differs from the other perfumes we have considered by containing star aniseed and some of the balsamic gums. It consists of one ounce of the essence of star aniseed, the same quantity of tincture of tolu, and five ounces of the tincture of styrax, with the same amount of rectified spirits of wine. In addition to these, it contains half a pint of essence of jasmine, half that quantity of essence of hyacinth, half an ounce of the essence of vanilla, and fifteen drops of the essence of ambergris. The materials are to be mixed together, and allowed to remain for a week, being frequently shaken during that time, and is then decanted, and filtered, if necessary.

Bouquet d'Amour, a very fragrant perfume, is thus prepared:—Take of the essences of rose, jasmine, violet, cassia, two drachms of each; of the essences of musk and ambergris, of each one drachm.

Eau d'Ambre Royal, sometimes called *Eau Royal*, consists of one drachm of essence of ambergris, the same amount of the essence of musk and *essence d'ambrette*. These are dissolved in five ounces of rectified spirits of wine, and half that quantity of orange-flower water is added. This recipe produces a very agreeable musk-like scent, which, owing to the large quantity of ambergris and musk it contains, retains its fragrance for a very long period.

The *Extrait de Musc*, or Essence of Musk, required for the preceding, and other perfumes, may be thus prepared: Take the ordinary tincture or essence of musk, four parts; essence of ambergris, two parts; essence of rose triple, one part; and mix them together. The *extrait de musc* may also be used as a perfume for the handkerchief by those to whom the smell of musk is agreeable, but if so employed, only a very small quantity must be used for the purpose.

Eau d'Ambrette, sometimes called *Esprit*, or *Essence d'Ambrette*, is made by digesting for a week four parts of crushed musk seed in ten parts of rectified spirits of wine, diluted with three parts of water. This preparation will be found to be improved by the addition of a few drops of *esprit de rose* and essence of ambergris.

Esprit d'Orange is a very agreeable-smelling preparation. It consists of two drachms and a half of oil of orange-peel, half a drachm of oil of cedrat, fifteen drops of the oils of lavender and cloves, and eight to ten drops of the essence of musk.

It must be remembered with regard to this preparation, and also all perfumes into the composition of which the oils of orange or lemon yeast enter, to be careful to rinse the bottles into which the scent is to be poured well with rectified spirit. If this precaution is not taken, and any moisture should be present in the vessel, a portion of the essential oil will be immediately deposited, and render the perfume more or less milky. In that case some dry carbonate of magnesia must be added to the fluid, and the liquid filtered through paper.

AMATEUR TURNING.

III.

As we trust that we have now given to the reader a tolerably clear idea of the lathe, of the appliances and tools used in ordinary concentric turning, and of the materials upon which he is to employ them, we shall next proceed to speak of the manner in which they should be used.

For his first essay in turning, a box of moderate dimensions will be a good object to be selected by the beginner. A piece of wood of the proper size—which will be somewhat larger and longer than the intended dimensions of the box—must be selected. This must first be made tolerably round with the chisel, and then glued upon the chuck, another piece being glued upon a second chuck to form the lid, and when the glue has become perfectly hard and dry the work may be commenced.

The box having been placed in the lathe to reduce it to form, the gouge should be first employed. Placing the rest on a level with the axis of the work, hold the handle firmly and steadily, in a downward direction, so that the cutting edge may be above the axis; bring the tool gently and gradually to the wood at first, and do not press against it roughly till it has become comparatively smooth, otherwise the wood will probably be chipped, and the edge of the tool be damaged, and the hands of the beginner will also be likely to meet with some very disagreeable jerks. The work being made tolerably round, raise the rest somewhat above the axis, and use the chisel. This will require holding in a less oblique direction than the gouge, and being brought in contact with the wood at a higher level, much more caution will be required in using it than in using the former tool, for it is far more difficult to manage, and will, if improperly handled, dig into the wood, and chip off great pieces in a most objectionable manner. It should be held lightly but steadily, and allowed to run along the work, clearing away its inaccuracies, and feeling almost as if it were acting by itself. The sides having been made perfectly smooth with the chisel, a groove will have to be cut to receive the lid. The rest will now have to be turned transversely, so as

to face the end of the work, that the inside may be hollowed out, which may be done with the gouge. To ensure accuracy, it will be well, when this has been done, to try with the callipers or compasses whether the diameter is the same at all depths, and, if not, more can be turned away. The lid will be turned in the same

manner, the diameter of the groove made for its reception being accurately measured with the callipers, and transferred to it. When it fits, it may be cut from its chuck and placed upon the box, and the two smoothed together till they appear as if of one piece. The top of the box will now require to be made smooth, and for this purpose the rest must again be placed across. All roughnesses and scratcher being turned out, a piece of sandpaper may be taken and held against the work while the lathe is made to turn rapidly, first forwards and then backwards, and afterwards it may be polished by holding against it a piece of rag on which

are a few spots of olive oil, and a handful of its own shavings. For finishing the bottom of the box, it will be necessary, after it has been cut off, to turn down the chuck so as to fit its interior, for this will give far better support to the box than it could derive from being merely inserted into a chuck, and a shoulder should be left, against which its upper lip can rest. This chuck should not be made to fit into the box so tightly that force would be required to make the two fit, nor yet so loosely as to admit of the chuck turning

without carrying the box with it; if the fault, however, be on the latter side, more tightness may be given by rubbing the chuck over with chalk. Much care is required in chucking hollow objects, as the least inaccuracy will lead to serious inequalities in the work, and in removing such work from the chuck some care is necessary to avoid breaking it. A small chisel should be carefully introduced between the

shoulder and lip, first upon one, and then upon the other side, till the article slips off. The sides of boxes may, if desired, be ornamented with mouldings by means of the smaller chisels and gouges, or they form a very good opportunity for the employment of the milling tools.

Screw-cutting.—Supposing, however, that instead of merely slipping tightly on to the bottom of the box, it is

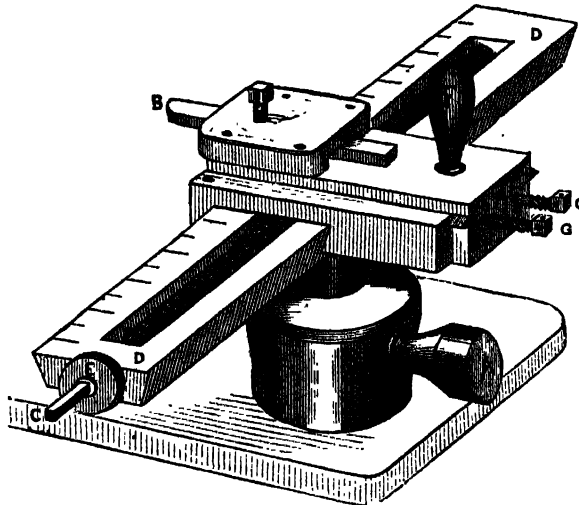


Fig. 2.



Fig.

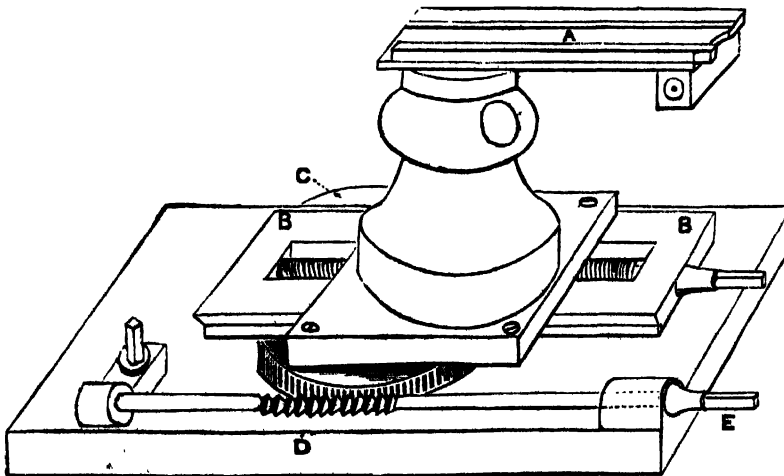


Fig. 3.

intended that the lid should fit upon it by means of a screw, a somewhat more delicate and difficult operation will have to be performed. The best and least expensive method of doing this is by means of the screw tools shown at Fig. 1. The groove to receive the lid having been cut down to a proper depth, the outside tool, A, should be placed upon the rest, and its edge brought against that part of the groove nearest the lip; and then by a steady, horizontal motion, while the lathe revolves at a moderate pace only, brought to the opposite end of the groove, from which, when reached, it must at once be jerked out, otherwise the thread will be injured and the screw spoiled. If this motion is performed smoothly and steadily, a series of hollows, corresponding to the points in the tool, and of ridges, which form the thread of the screw, will be left with great regularity. The inside screw, in the lid of the box, has to be cut in the same manner with the inside tool, B, the lid having previously been hollowed out almost to fit the box, but not, as in the former case, wholly so, sufficient additional wood being in this instance left to form the thread of the screw. This is the method employed most commonly by practised turners, and by skilful hands it can be accomplished with great precision and without difficulty; it is, however, one of those delicate matters which give considerable trouble to the beginner and the less skilful workman, and for the benefit of such persons an invention has been brought into use which renders screw-cutting extremely simple. The traversing mandrel is a contrivance by means of which a backwards and forwards motion of the work is attained. Beneath the left-hand end of the mandrel a screw-guide is fixed, capable of being raised or lowered at pleasure, and cut into grooves of various sizes, to suit the different sized threads to be cut. This fits into a cylinder indented with a screw, which fits on the end of the mandrel, and when the fly-wheel is turned half-way round, the mandrel is, by this apparatus, forced to take that backwards and forwards motion while it revolves, which necessarily results in a screw being cut by a tool held still against the work at the opposite end of the mandrel. It is well to have about half a dozen different sized guides for cutting various sized screws; and while working with them it is best to proceed somewhat cautiously at first, not holding the tool too hard against the wood till the line of the thread is pretty well marked upon it. It should, however, be observed that the traversing mandrel is better adapted for cutting short than long screws. The traversing chuck, a more complicated and ingenious, though not more useful invention than the above, gives a similar motion, and admits of a screw being cut with perfect accuracy with a single-point tool.

In turning out a hollow sphere, it is necessary, after the outer portion has been shaped, that a hole or holes should be bored into its interior with the centre-bit, through which the inner portions may be cut away. To avoid making too large an aperture, it is better to make half a dozen holes, at equal distances from each other, and to work through these till all the excavations meet. The curious Chinese balls, which contain sphere within sphere, are worked by this method. The innermost sphere is first hollowed out; its exterior and the interior of the second ball are then worked upon till the first is detached, and the work is thus carried on till the whole series is completed.

Before attempting any article on which labour is to be bestowed, we should advise the beginner to accustom himself to work by turning large pieces of wood into shape, for practice merely. The art of turning is one which cannot at once be acquired from any directions, either written or verbal; practice, and practice alone, will give a mastery over the tools, and it will be well that this power should be acquired on worthless pieces of wood, otherwise failure and disappointment will ensue. And this will hold

good with regard to some of the particular operations in turning. We should advise no one to make his first attempt at screw cutting on a piece of wood intended for a specific purpose, but to make a series of trials on waste pieces till he has gained the required facility. The reader will therefore remember that while, for the sake of conciseness, we give directions for the formation of a particular article, as though it were the first thing attempted, we always imply that previous practice has been gone through. And here we may remark, that for soft woods the tools require to be sharpest, and ground to the most acute angle, and less so for hard woods and ivory; while metals may be turned with a comparatively blunt tool.

We shall now have to speak of the more costly and less common appliances which are used for elliptical and eccentric turning.

Elliptical Turning.—This is performed by means of the elliptical, or, as it is more commonly though incorrectly called, the oval chuck. This machine consists of a framework to screw upon the mandrel, the centre portion of which is allowed a sliding motion upwards and downwards within certain limits, and of a ring with two arms, in which are grooves through which screws pass into the head-stock, and which is thus capable of a sliding motion from side to side; the diameter of the ring, and the space over which the slider in the framework moves are the same, and when the centre of the ring is not set exactly opposite to the mandrel the motion obtained from these two contrivances acting in concert will be elliptical.

The Sliding or Parallel Rest.—This contrivance, of which we give an illustration at Fig. 2, is exceedingly useful for facilitating the cutting of patterns, and fits upon the bed of the lathe, like the ordinary rest. As will be seen from the illustration, the whole of the upper part of this rest can be adjusted to the work at any angle, by means of the nut A, while the tool-box, and tool, B, can, by turning the screw C, be moved to any part of the graduated steel-bed D D, the distance being regulated by the numbers marked on the wheel E. The tool B, which can be changed at pleasure, is held in the tool-box by a screw, and is pushed towards the work or drawn from it by a handle, F, while the depth of the cut is regulated by the screws G G. By means of this graduated rest, many beautiful patterns may be cut with the greatest accuracy; and it is perfectly invaluable when used in connection with some of the other instruments which we have to describe hereafter. It requires a set of tools peculiar to itself, which fit into the tool-box, and are about two inches in length; they are of different sizes, and are ground to different angles. These may be bought at from six to ten shillings per set.

Before applying ornamentation to any surface by means of the sliding rest, it will be necessary to render that surface perfectly true and level, otherwise the pattern will not be accurate. To accomplish this object, adjust the rest parallel to the work, and put in a round-ended tool, setting it by the screws G G, so that it may merely touch the wood or ivory; if the screw C is then turned, by means of a handle which fits to it, while the lathe is in motion, so as to make the tool-box, and consequently the cutting tool, run along the steel-bed for the whole length of the work, a true and regular surface will be given, though sometimes a hollow may be left in the centre, for which reason it should be proved with the straight-edge, and the smoothing process again gone through, if necessary. Patterns may now be cut by inserting pointed tools, and the occurrence of these at the required and regular intervals will be secured by attention to the markings on the graduated bed and wheel.

The Circular Rest.—The parallel rest, however, is useful for working in straight lines only, and cannot be made fully available for the decoration of globes, vases, and other objects which partake of the spherical shape;

and this difficulty is supplied by the circular rest (Fig. 3). The construction of this machine, is, as will be seen from the engraving, exceedingly simple. It has two beds, upon the upper one of which, A, fits the tool-box and cutting-tools, which are the same as those used for the parallel rest; the lower bed, B B, which is parallel to the upper, has the same mechanism for giving a regular lateral motion as the bed in the parallel rest. This is fixed on a horizontal wheel, C, which is made to revolve in the required direction, and for the desired distance, by the screw in the spindle, D, which can be turned by a handle at E. This simple contrivance renders the ornamentation of spherical surfaces exceedingly easy.

GARDENING.—XXXVII.

THE imitation of the beauties of Nature, and their introduction into the space allotted for the garden in as elegantly graceful a manner as can be accomplished, so as to look well without attempting more than there is room for, is the plan for laying out a garden. There should be no straight paths, sharp angles, or uniform planting; the paths should be formed in graceful curves, and the curves induced by plantations of clumps or single handsome trees, so that one or the other may form a positive interruption to any short road to the house, at every part of the path from which it may be seen.

Clumps of trees and beds of flowers should not be placed on the grass, except at a short distance from the road, and single trees should be placed at the distance of ten to twenty feet. The clumps at the side of the road should be of a large size, and the principal trees and shrubs, evergreens; some clumps formed of the same kind of trees, such as various hollies, various kinds of firs, another of the evergreen oak, another arbutus; but unless this plan can be carried out on a large scale, mixed plantations are better, on account of the beautiful effect of the contrast produced by the colours and growth of the foliage. The beds or clumps near the house should be filled with flowers and flowering shrubs, such as rhododendrons, azaleas, andromedas, laurestinus, *garrya*, *eliptica*, hardy heaths, roses, &c.; and these beds must be in the line of the drive or path, and the outline parallel with the edge of the grass, avoiding most particularly circular or geometrical beds, which would at once destroy the charm which these formations are intended to create by their natural and graceful appearance.

Rockwork.—In the garden or grounds a corner may be prettily fitted up with rockwork, if a larger space of ground cannot be given. This ornamental work is very easily done. The most simple way is to get a cartload of rough material that is left after the burning of bricks, lay the blocks upon a mound of earth, and fill up the spaces with earth; then fill in between each block, by planting grass, ferns, primroses, violets, and any wild creeping plants. This rockwork should never be placed near the house, but it serves to fill in corners round a summer-house, or to cover unsightly patches of uncovered brick-work.

When opportunity offers of laying out rockwork in a more scientific elaborate manner, it may be made to serve for geological and botanical specimens, and form a very beautiful work of art, if attention is paid to the formation of natural rocks, mountains, and the sea-beach, and materials either from them or as nearly resembling them as possible, be obtained, as well as the mosses, heaths, ferns, &c., which grow upon them; and a young lady may very profitably employ a portion of her time in studying the formation of rocks and the growth of mosses, and superintend the formation of rockwork scientifically, as well as artistically. If the work is wished to be really well executed, it will be important to get the rock or stone from the nearest beach or quarry, together with the

native plants. The size of the stones should be varied, but in proportion to the size of the rockwork to be formed.

The foundation may be made of earth, as before, and the pieces of rock or stone fixed in it, care being taken not to mix two kinds of stone together on the same formation; and the plants that grow on those rocks or stones only should be planted among them.

Where there is sufficient space a cave may be formed, to hold a rustic seat; and this should be thickly encircled with ivy and creeping plants, and the whole should be surrounded with trees, so that the secluded spot may not be easily perceived. It will be found a deliciously cool retreat, and a most delightful resort for reading or work. The interior may be lined with stones and ivy, and in a very short time will wear the appearance of an old ruin, and form a very interesting object in garden or pleasure grounds.

Rockwork and Water.—Rockwork may be made round a fountain, and planted with native and foreign water-plants; and a rocky island in the centre of a small pond or any piece of water may be easily constructed in the same manner as above described. Water, if placed near the old ruin, would have a pretty effect; and streams of water can easily be made to fall from the rocks, or rise into the air as fountains.

When water is not laid on for these purposes, place a large cask holding about thirty-five gallons of water in an elevated position at a short distance, and have underground pipes leading to the spot required, where, by service-pipes, any water arrangements may be made; and the cask of water would for one hour keep a small cascade or fountain running. If there be no pond, or similar supply of water, a pump-well might be made to enliven the rock with waterfalls.

Small ponds of an oval or round form have a pretty effect in gardens, edged with rockwork, and the centre filled with it, on which may be grown some of our pretty native water-plants—the yellow water-iris, the water-violet (*Hottonia palustris*), the frog-bit (*Hydrocharis morsus rance*), the flowering rush (*Butomus umbellatus*), and the lovely blue forget-me-not (*Myosotis palustris*), with water-lilies and water-plantains, and many others. The water should be kept clear, and overhung with willows, and the grass and edge of the pond planted with primroses, daffodils, violets, &c., to give a natural-rustic appearance.

The various kinds of flags and water-lilies contribute to the effect of water, and may be made of use where the shore is low. Flags and bulrushes arranged in tufts behind each other, in low situations near the end of a pool, keep up the deception, and raise a doubt where the water ends.

Arbours.—There are three kinds of arbours suitable for garden use—the natural, partly natural, and artificial. The first is formed of trees only, such as the weeping ash, beech, elm, willow, cytisus, and others; the second kind is partly formed by man, who assists Nature in training plants over other growths of the vegetable world, and forming a sheltered seat. The hollow trunk of an old oak, if covered with ivy or honeysuckle, forms a very pretty seat in a shady part of the ground; and by fixing the earth in a circular form the trunks of trees, rough and moss-covered, and closing in their branches at top, a very pretty arbour may be made, if various climbing plants are allowed to cover them, with ivy, and roses, and honeysuckle. The whole will soon be a thick mass of foliage and flowers; and within may be planted primroses, violets, ferns, amongst the roots of the stems; the seats, formed of pieces of trees (see HOUSEHOLD GUIDE, vol. ii., No. 27, p. 33), being carefully placed away from the sides of the arbour, to avoid the annoyance of flies that may lodge among the leaves. Arbours may also be formed of trellis-work, covered with creeping plants and ivy (see HOUSEHOLD GUIDE, vol. ii., No. 29, p. 73).

HOME MANUFACTURE OF FISHING-TACKLE.

II.

ALTHOUGH, as we said in a previous article, it is generally advisable to purchase fish-hooks, still it is by no means difficult for any person who possesses some little knowledge of the methods and processes of hardening and tempering steel to make fish-hooks for himself. Steel wire proper for the purpose may readily be bought; and the only tools he will require, will be a hammer, a pair of pliers, scissors, files, a knife, and one or more "benders."

He must first with the scissors cut the wire into proper lengths, and then make the barbs with the knife, which works upon a pivot. The operation is performed in the manner shown in Fig. 1. The point has next to be sharpened, first with a file of coarse teeth, and afterwards with a fine one. The bender, which is a curved strip of steel fixed in a wooden handle, and shown in Fig. 2, has now to be used. The barb is hooked over its end, A, as is shown in Fig. 3; and the other end, being held fast in the pliers, is bent round the bender, as shown in Fig. 4. The upper end of the hook is now flattened with the hammer, or bent round into a loop as may be required, and nothing more remains to be done but to harden the steel, to scour the hook with emery and oil, to cleanse it thoroughly in sawdust, and to temper it by heating.

In Fig. 5 we show the different stages of manufacture. A, shows the wire cut to length; B, the barb cut; C, pointed and barbed; D, the hook bent; and E, the hook flattened and completed.

The bender and other necessary apparatus will not present any difficulties to a tolerably expert amateur mechanic.

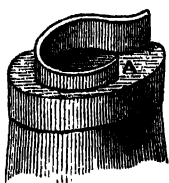


Fig. 2.

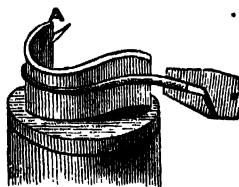


Fig. 4.



Fig. 3.

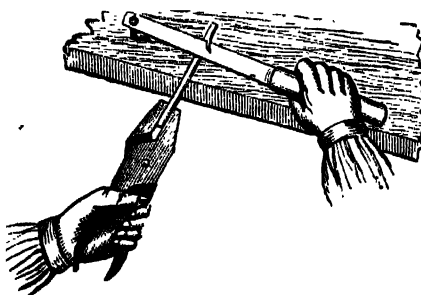
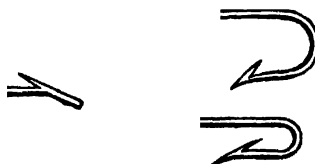


Fig. 1.



leaves have begun to expand. It always nestles, and probably feeds, in open places.

The hen woodlark builds her nest in hedges, among the heath, high grass, or under a green hillock, in fields near woods, in copsewood, or under juniper bushes. The eggs are variegated with light grey and brownish violet. She sometimes commences laying as early as April. The incubation and nursing occupy about six weeks; when the first brood are able to shift for themselves, sometimes the second nest is commenced. The times of both, however, are irregular.

Nestlings brought up by hand should be taken when about ten to twelve days old, and fed on crumbs of bread, rape and hemp seed crushed, each well scalded and made into a moist paste, fresh each day; boiled yolk of egg, and scraped lean beef, moistened with water, fresh each day. Food given to nightingales, is sometimes given as a change.

The young birds should be fed every three or four hours, commencing at the dawn of morn.

The changes of food of the adult woodlark are similar to those given to the skylark, viz., German paste, or grated crumbs of bread, which can be mixed; occasionally grated nut of liver may be added to either, as also grated cheese, or the yolk of a hard-boiled egg. German paste is the food most commonly used, but the changes named will be found useful to keep the birds healthy.

A well-known authority on the subject of bird-keeping, writes:—"Of all the species of larks the woodlark has the finest song, and—excepting the nightingale—the one whose natural notes are the most delightful. Its clear, flute-like voice

executes a sonorous, tender, and somewhat melancholy air. In the country it rises from the tops of trees so high in the air that the eye can scarcely discern it, and there remaining stationary, the wings and tail expanded, it sings uninterruptedly for hours together: it sings in the same manner when perched on a tree. In the house it utters the different modulations of its beautiful voice from February to August; in its wild state from March to July. The female sings also, but her strains are shorter and less sustained."

The song of the best woodlarks, according to the old fanciers, contained thirty-two changes, in which each note is repeated several times, commencing with the notes, "loo, loo, loo," and all are very like the tones of a flute. As these birds come fully into song their notes become louder throughout, but their tones are always even as, unlike the skylarks, they seldom raise, depress, or vary their voices during any of their changes. When woodlarks are singing with other birds, the richness of their tones is best appreciated.

The old fanciers of these birds used to keep with them nestling linnetts, which often sang their song very accurately. These birds were frequently sold for very large sums, being deemed valuable as singers and teachers of an acquired song, which in many cases they sang very

CAGE-BIRDS.—XI.

THE WOODLARK (*Alauda arborea*).

THIS sweet song-bird somewhat resembles the skylark in its appearance, form, gait, and some of its habits; it is one-third smaller, and about two-thirds the weight. The body is long and slender; the top of the head is reddish-brown, with four dark-brown lines; its feathers, from eye to eye, are surrounded by a whitish ash-coloured line, when it raises its long feathers into a crest, and renders the head large; the beak is black above, brown below, tending to bright red at the tip; the legs are flesh-coloured; the tail is very short; the hind claw is as long and straight as the skylark's.

Bechstein says the female is paler, with darker ornaments, the crest in her head more prominent, and the line round the cheeks more distinct. It is well known that few dealers can with certainty tell the sex of freshly-caught woodlarks.

The bird is seldom an inhabitant of either wood or forest, nor is it often seen on the top of a tree till the

freely at the seasons when most other birds were out of song.

Very few nestling or brancher woodlarks are to be obtained of dealers. Those usually sold have moulted in the fields, and are caught when birds are on flight. This causes them to sing less freely, and to be more timid than brancher skylarks.

SOCIETY.—I.

MATRIMONIAL ENGAGEMENTS, SETTLEMENTS, ETC.

WITH the peculiar sympathy which attracts two persons to unite their hands and hearts, and to take each other "for better or for worse," the rules which govern social life have very little indeed to do. It is only in as far as outward observances may or may not influence the welfare of the devoted pair that it is necessary to observe the customs prescribed by the code of society. From the prominent position which every engaged couple occupies in the eyes of their immediate circle, little acts of inadvertence are liable to be judged with more severe criticism than, from their trivial nature, such acts would at other times excite. It is of no avail to protest against the right of one's acquaintances to comment on matters that are purely personal; people *will* observe lovers with intense interest, and pass judgment on their conduct in a manner that no other situation in life warrants. The only mode by which to disarm officious meddling is in all outward forms to comply with the observances generally approved and practised by refined and educated people.

Beginning with the engagement of two young persons. In England greater freedom in the choice of a husband or wife exists than in any Continental society. Abroad parents generally choose for their children, and, as mutual affection and suitability of tastes are not always the chief considerations, it is not wonderful that very ill-assorted unions are frequently the consequence. In France, for instance, the amount of dower that a bride takes to her husband is considered a more important question than the amount of love or esteem she entertains for the object of her parents' choice. Suitable *parties* are bespoke, so to speak, from their birth. Business connections and family interests are strengthened by such marriage ties, just in the same manner that a partner in a firm is considered more or less eligible on account of his capital or experience. Marriages of affection are not necessarily incompatible with marriages formed from interested motives, but mutual affection is not considered necessary as a starting point.

In England the contrary is the case. From the highest to the humblest sphere of life, English maidens, as a rule, enjoy very much greater freedom of choice in matrimony, and very rash and improvident matches are sometimes the result. At the same time, the cases are few indeed when the bride-elect marries in open defiance of her parents' wishes; a lasting and disappointed love is more often preserved when direct disapproval of a marriage is entertained by parents.

According to English custom, a gentleman generally ascertains the state of a lady's feelings towards himself before he makes a positive declaration of his love. His proposal having been conditionally received, the lady usually refers him to her father or nearest relative for sanction of the union. If all preliminary statements are satisfactory, the young couple are considered engaged, without any further formality than the exchange of rings or some similar love token. If it should happen that delay arises before the engagement can be completely effected, it is not customary for the young people to meet in the interval. The lady in such cases usually pays a visit to distant friends, or in some manner contrives to absent herself from circles where she is likely to meet

her admirer. All correspondence by letter is suspended, and, in fact, the lovers live towards each other as perfect strangers for the time.

The delays which most commonly arise in the acceptance of a suitor by a lady's parents and guardians are those occasioned by marriage settlements and similar business transactions. It has long been a generally-recognised custom that, when a lady had a fortune, some portion of it should be settled on herself, for her own especial use and absolute benefit, leaving the interest which is derived from the principal of her fortune to the use of her husband. The principal was generally held under trust for the joint lives of the husband and wife, to be ultimately divided amongst the children.

One great necessity for marriage settlements has now passed away by the passage of the Married Women's Property Act in 1882. By this Act women retain *ipso facto*, even after marriage, all property of which they are personally possessed, or become possessed, or earn by their own exertions, even without any special provision to that effect. Previous to this, money might be left to a married woman, "free from the debts or control of her husband;" but all money now left to her personally is within her own control. Formerly all property became vested in the husband, unless otherwise provided for, and hence an absolute necessity for settlements which now does not exist.

There may still, however, be many reasons for settlements where much property is at stake on either side. Even where the actual property is all on the side of the wife, it is to be remembered that the husband undertakes many liabilities and responsibilities for her, and something may fairly be due to him on that score. Moreover, it is not always desirable to leave property wholly in the personal control of a married lady, who may sacrifice her own interests whilst under the control of her husband. And where the property is all on the side of the husband, it is often very desirable that he should settle something, whilst in his power, absolutely upon his wife. This is one very important point of view from which to regard marriage settlements. Such engagements are of an enduring nature, whatever may afterwards betide in the way of losses to the persons concerned: thus, if a man is not actually under a fiat of bankruptcy at the time of making a marriage settlement, the amount of money which he settles before marriage on his future wife is reserved to her use in the event of his afterwards becoming insolvent towards other creditors. The same rule applies to women. Under every circumstance, whatever amount may be agreed on for the benefit of either party, that amount is secured in perpetuity for the individual's benefit. The instances are numberless in which the marriage settlement framed for a wife's benefit—in the view, perhaps, of providing for her use mere pin-money—has been the sole income left to a family when, by unforeseen misfortune, the bulk of income from all other sources has disappeared. On this account alone, if for no other, ladies about to marry should suffer their natural guardians or nearest friends to act in accordance with the principles of prudence and common sense observed in other transactions of daily life.

Women that have no money escape, to a certain extent, many preliminary troubles of a business nature when forming a matrimonial engagement. There is one stipulation, however, which most sensible parents make when young persons without any but precarious means of living are about to be united, namely, Insurance. The man, as the bread-winner, is usually expected to insure his life before marriage, and to settle the amount of the insurance on his wife. Of course, it becomes a matter of honour and of means to keep up the payment of the insurance premium afterwards.

Whenever it is possible, the parents of a young lady

although herself penniless, should endeavour to obtain from her future husband the promise or settlement of a certain sum of money, however small, which she may call her own, and dispose of at will. Very few women, even when happily married, like to ask their husbands for trifling sums, or to give account of every farthing expended on their personal wants. Although not openly confessed, the restraint is galling, and embitters many lives. Nay, the need of a certain amount of pecuniary independence frequently leads to unpleasant results; and the bond of confidence once having been broken, it is impossible to limit the breach which may ensue. Money, we know, is not always at the root of all conjugal discords, but many owe their existence to that source alone.

The anxieties of business transactions being happily at an end, engaged couples are subject, in good society, to certain restraints which are almost if not equally irksome. Lovers do not usually bear in mind that the whole period of their engagement is a period of probation. They are mutually under trial. The opportunities of sharing each other's company previously may have been few; in all that constitutes their habits of thought and living they may be totally ignorant; and it by no means follows that, because an engagement has been entered into, marriage is certain to crown the intimacy. In no case does the old proverb, "many a slip between cup and lip," hold good with such disappointing force as in projected marriages. The strict surveillance to which a maiden is during that time subject often constitutes the "rugged course" of which lovers so bitterly complain. For instance, no young lady who values her status in the eyes of society ever appears at theatres or other places of amusement alone with her lover, she is either attended by her mother, sister, or some other female chaperon. Neither should she frequent promenades and other places of general resort, without the companionship of a sister or friend. Retiring from a circle of friends in the same apartment, and whispering apart in conversation to each other, is also forbidden by every rule of good taste. A gentleman may pay particular attention to the lady he is about to marry, but at no time should his attentions be of a nature to excite smiles and comments on the part of others present. Whatever makes people look absurd is a violation of propriety, and should be scrupulously avoided.

Lovers' quarrels are a fertile topic, and are supposed to be inseparable from an engaged state. What do they arise from?—generally from fickleness and jealousy. On the one side there is too much exaction, and on the other too great a proneness to take offence. These disagreeable scenes might be avoided by two persons not imposing on each other unaccustomed restraints. If a lady, for example, objects to smoking, and a gentleman to seeing his future wife waltzing, an understanding should be arrived at from the commencement, and the rule observed, or not, as may be agreed. Also, engaged people should not consider that they can henceforward live only for each other, and confine all the amenities and attentions demanded by other members of society to their individual selves. Acts of courtesy and duty towards friends and relatives should not be suddenly relinquished in favour of one person only, and it is both unreasonable and unwise to expect such sacrifices. A state of life equivalent to warm and sincere friendship is the nearest approach to perfect happiness and decorum that engaged couples can aspire to.

Invitations to visit in society are generally given jointly to engaged persons; but it is not considered good manners for either the lady or gentleman to refuse if the act of courtesy has not been extended to the other. In the case of a young lady being invited to the house of any of her future husband's friends—she herself being a stranger—it is necessary that an invitation should be given to the mother or some female relative of the bride-elect also.

The escort of her lover is not, under the circumstances, considered sufficient.

In going to or from places, on business or pleasure, engaged people, if alone, should either walk or use public conveyances—cabs and private carriages should be avoided. In walking in the streets or promenades, the engaged lady may take the left arm of the gentleman, but it is excessively vulgar and indecorous to clasp her hands on his arm, as is sometimes seen.

It frequently happens that two persons, who upon slight acquaintance appeared to be exactly suited to each other, discover, when intimate, that they have been mistaken. The engagement is then broken off. On such occasions the parent or nearest friend is usually appointed to see that all presents and correspondence are returned, an act which it should be a point of honour to carry out most scrupulously. The best mode of proceeding is for each person to seal with his or her own hand the letters each has received. With regard to presents, things that have been worn, such as slippers, and other fancy articles, should not be sent back; they should not, however, be worn any more. Jewellery, books, and articles of furniture, if any have been presented in view of the approaching marriage, should be returned.

The character of presents given to each other by an engaged couple, should be in strict accordance with their position in life and pecuniary means at disposal. Love should not be measured by the costliness of its tokens. A rich man may spend a little fortune on an engagement ring, whilst a poor man may only be able to afford a simple band of enchased gold, to be worn afterwards as a keeper to the wedding ring itself. There is no greater folly than making extravagance in present-giving before marriage a burden to be afterwards defrayed by stint of living and privation of necessities. Expenses multiply enough in the ordinary course of things at the outset of housekeeping, without having to clear off obligations due to mistaken generosity. Brides that are to be propitiated only by such sacrifices are seldom found to front bravely the cares and unavoidable anxieties of real wedded life.

The absurd revelations which from time to time enliven the proceedings of certain law courts should be warning sufficient against engaged people indulging in the folly of extravagant language when writing to each other. The term "love-letter" usually means downright nonsense, and is no proof of genuine affection. Plain truth and common sense are not at all incompatible with devotedness and warmth of feeling, and, if preserved, such letters call up no feeling of self-reproach in after life, which is more than can be said of many of the foolish epistles penned before marriage.

An elopement is the crowning act of folly which some over-ardent spirits are tempted to commit during the course of their probationary state. Far from such a step being proof of devotedness towards each other, it is an act of unmitigated imprudence, and utter selfishness. A young lady who consents to such a proposal virtually throws off her right to the love and protection of her parents throughout her subsequent career, neither does she ensure the lasting respect of her husband. Except in very rare instances, such a course renders him mistrustful of his wife's constancy. The step is the last he would be inclined to sanction in a child of his own, and should, therefore, be the furthest from his wish to instigate.

The length of a matrimonial engagement depends entirely on the personal convenience and inclination of the engaged couple. Hasty marriages are seldom a wise step; on the other hand, a long period of courtship affords no guarantee of more perfect happiness in the married state. People who think that by an unusually long engagement they shall be enabled to "know each other better," are just as liable to be deceived as those who consider that the intimacy of a few weeks is sufficient. However

long an engagement may last, the couple usually endeavour to make themselves as pleasing as possible; therefore, not so much the conduct of engaged people during their courtship is the true test of a disposition as the character generally displayed beforehand. Between persons who have been intimately acquainted for years, less concealment of the real temper is likely to occur. It is when strangers meet, in unfamiliar circles, that there is danger of over-hasty marriages being a source of ultimate repentance. Twelve months' engagement is considered by most people in the middle circles of society quite long enough.

It is the lady's privilege to fix the wedding day. When it is generally known amongst friends that the marriage is speedily to come off, presents are mostly the result. The nature of presents depends very much upon the style of living the young couple are about to adopt. The widest latitude is allowed in the matter, but generally something of a lasting and useful description is best approved. Plate is always presentable, so are linen, lace, and articles of furniture, musical instruments, carriages, &c. The least acceptable gifts are those which require an amount of expense and trouble to maintain them in order. Fragile articles, also, are not well adapted for wedding-presents. Some people are very fond of giving costly table-ornaments, or sets of choice china and glass. When one article of such sets is by accident broken, the companion pieces are comparatively valueless, and the replacement, which, out of compliment to the donor, is generally thought necessary, is a tax on the purse of the recipient.

Very intimate friends and relatives may ascertain the wishes of the future bride or bridegroom as to the form which the proposed present shall assume; and it may be also mentioned that gifts of money are not out of season when a wedding is in question. Of course, money-presents would only be bestowed by one who was the superior in age and circumstances to the bride or bridegroom elect.

In England it is not *de rigueur* that the affianced bride should provide any article towards house-furnishing; still, many ladies like to add something to the joint stock, and in such cases household linen is generally the favourite object.

Elegant additions to the wardrobe of the bride are very popular as presents. Even in the most affluent circles, presents of shawls, furs, silks and velvets *in the piece*, are in accordance with good taste. The above should be of perhaps a more costly nature than the bride would purchase at her own expense, but should be such as she can wear with propriety in whatever station of life it may be her lot to fill.

In France, when means are ample, the bridegroom's wedding gift to the bride is chiefly composed of expensive articles of attire, including jewellery, &c. In England the bridegroom is not expected to contribute anything to his future wife's wardrobe. That task rests with her parents, provided she has no fortune of her own. In selecting her wardrobe, or *trousseau*, as the term is, a bride's taste should be guided exclusively by common sense to choose only such articles of apparel as befit her position in society. To be meanly clad would reflect discredit on her husband, whilst to be over-dressed would be ridiculous. Good, durable materials, genuine of their kind, whether of one description or another, should be the chief aim. Cotton velvets, "faced" silks and satins, imitation lace, cheap jewellery resplendent with false stones, gaudy feathers, flimsy streamers, thin, showy boots, outrageously fashionable chignons and bonnets, should be avoided, as so many signs of a frivolous ill-regulated mind. A bride cannot well have too much good body linen—garments of the kind suffering little from change of fashion—and she should have at least twelve months' outfit of clothes for outward wear. It is not advisable to have all the dresses made up, as many circumstances may tend to render them unwearable at the appropriate season. Changes from ill-

health, death, and fashion, may intervene to render a good wardrobe in a very little time really useless.

Shortly before the wedding-day the bride should pay complimentary visits to her friends. The morning is the best time for calling on such occasions. The bridegroom-elect generally receives his friends in a less formal manner. His especial adieu to his intimate acquaintances is made at a supper party or some entertainment of the kind.

TO MAKE AN ÆOLIAN HARP.

AN instrument of the kind about to be described seems to be of very ancient origin, but was re-introduced during the last century. The Æolian harp produces a very pleasing, melodious sound, especially in the open air, and is not difficult to construct. A long, narrow box, the length of a window, or the position in which it is to be placed, is the first requisite; it must be made of thin deal, four inches deep and five in width. At the extremities of the top glue two pieces of oak about half an inch high and a quarter of an inch thick, for bridges to which the strings are to be fixed; *within* the box, at each end, glue two pieces of beech-wood, about an inch square and the width of the box. Into one of the bridges fix seven pegs, such as are used for piano strings; into the other bridge fasten the same number of small brass pins; and to these pins fix one end of the strings, made of small catgut, and twist the other end of the strings round the pegs; then tune them in unison. Place over the top of the strings a thin board, supported by four pegs, and about three inches from the sounding-board, to procure a free passage for the wind. The harp should be exposed to the wind at a partly open window; to increase the draught of air, the door, or an opposite window in the room, should be open. The strings, in a current of air, sound in unison; and with the increasing or decreasing force of the current, the melody changes into pleasing, soft, low sounds and diatonic scales, which unite and occasionally form very delightful musical tones. If the harp can be placed in a suitable position, so as to receive a sufficient draught of air, in a grotto, or romantically situated arbour, or hidden in some shady nook near a waterfall, the effect of its sweet sounds is very charming.

WATERPROOF PAPER.

COMMON paper, by a very simple process, may be converted into a substance as strong as parchment, by means of sulphuric acid. The paper is simply dipped in the acid; but the acid must be of an exactly determined strength, and mixed with half its bulk of water. A sheet of paper dipped in this liquid is almost instantaneously changed in character. It becomes tough, hard, and fibrous, but its weight is not increased, and it is far better for writing purposes than animal parchment. It can be rubbed better than paper, and almost as well as sheepskin; and it serves for vellum in bookbinding, and for all legal purposes, as well as animal parchment, for strong binding, and as a substitute for bladders to cover pickle and jam jars; and any paper that has even been printed on may be converted, by means of sulphuric acid, into vegetable parchment.

Paper can be made waterproof without giving it the character of parchment by dissolving 24 oz. of alum and 4 oz. of white soap in 2 lbs. of water; also, 2 oz. of gum arabic and 6 oz. of glue in 2 lbs. of water; the two solutions are to be mixed, and the sheets of paper dipped into the mixture while warm. They are then to be hung up to dry, and pressed. This paper is very useful for packages exposed to the damp, or for any purpose connected with the preservation of articles from moisture.

HOUSEHOLD DECORATIVE ART.—LII.

STRAW MOSAIC.

THERE have been recently imported into this country from Germany a variety of small fancy articles, decorated with a somewhat novel kind of ornamentation, known as straw mosaic. These articles, which consist of boxes, caskets, small cabinets, &c., are covered with bands and tesserae of variously tinted straw. In general design and principle the work somewhat resembles Tunbridge ware; but, owing to the glossy surface of the material employed, it is much more beautiful. The objects seen in our shops, are, we believe, almost wholly manufactured by forced labour in the Bavarian prisons, where the hands of the convicts are assisted in carrying it out by machinery and steam power. The straw used is brought from Florence—no straw of such good quality, or so finely tinted, being procured in Northern Europe. At a large model-prison near Anspach, in Bavaria, this work forms the chief occupation of the prisoners. When first admitted, they are set to attend to the machines which split and divide the straw into lengths, and afterwards, as they become habituated to this kind of labour, they are set to cement the straw upon paper, to form the tesserae into patterns, and to decorate the different articles.

But the art of straw mosaic does not necessarily require machinery for its execution; and the facility with which it may be done, and its beauty when accomplished, render it a desirable addition to the list of those decorative arts which are especially suited to ladies; and although the straw grown in this country cannot be said to equal that of Tuscany, it has sufficient brilliancy and delicacy of surface to form a tolerable substitute for it.

Wheat-straw, which contains a large amount of silica, or flint, is far harder and more highly polished than that of any other of the cereals. By careful selection, many straws may be procured which are naturally of good colours, in delicate and deep yellows, and in several tints of green and light red—other tints must be given by dyeing. This, in the Italian straws, is accomplished in the following manner: They are first spread upon the grass for a night to

soften. A blue colour is given by a boiling solution of indigo in sulphuric acid, called Saxon blue, diluted to the desired shade; yellow, by a decoction of turmeric; and red, by boiling hanks of coarse scarlet wool in a bath of weak alum water. A perfect white is obtained by bleaching with sulphur, and this is frequently done before dyeing is resorted to, as the straw then takes the colour better.

To effect it the straw is suspended in a net in a vessel, in the lower part of which is a pan of burning charcoal, with a dish containing sulphur placed over it. Perhaps, however, the most simple method of imparting colour is by the use of those *aniline* fluids, prepared from coal-gas waste, and sold under the name of "Judson's Simple Dyes," as these

involve no trouble in their preparation and use, and give brilliant hues of all kinds. As the hard glazing of silica upon the straw is slow to take colour, we have, in our own practice, found it better to boil it for some time in plain water to soften the enamel, afterwards to add the dye, and move the pieces of straw briskly about in it. For very deep shades, oat-straw, or rice-straw, though less highly polished than that of wheat, will be found better, as its softer texture permits of its taking up a larger quantity of colouring matter. The best portions of the straws for use will be those a little above the knots, as these are cleaner, from being protected by the flag of the plant, which will have to be peeled from them. The pieces of straw should be first cut into short lengths, after which, those that require it should be dyed; they must then be split with a sharp penknife into strips of

equal width—about that of the bands and squares given in the illustrations—and cut with a pair of sharp scissors into squares and lengths suited to the work to be performed; for greater facility, it will be well to place those of different sizes and colours in separate paper trays. It

is essential to the accuracy and beauty of the work that the width of the bands and squares should be all precisely the same, and, to ensure this, the beginner will do well to cut them at first by a paper pattern; a little practice, will, however, soon enable him to dispense with such assistance, and he will find that he can proceed much more rapidly without it. It will be found to save some

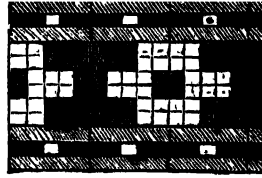


Fig. 3.

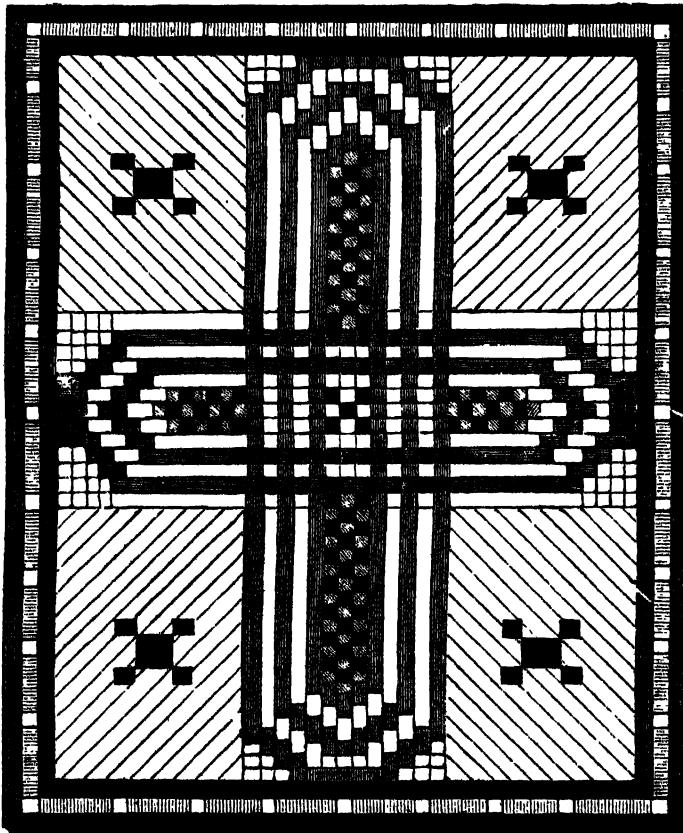


Fig. 4.

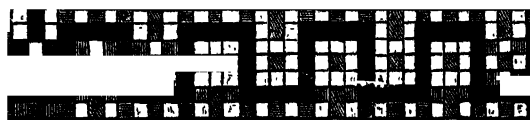


Fig. 5.

trouble in the after-pressing, if the bands, when cut, are laid upon a hard smooth table or board, and flattened with a rather hot smoothing-iron, a piece of thin, clean paper being laid between, to preserve the straw from discolouration.

The ornamentation may now be proceeded with, and this may either be done by cementing the pieces of straw at once on the wooden box or other article to be decorated, or by first fixing them to a piece of paper, to be attached to the article afterwards. If a working pattern of the full size has been provided, it will not be necessary to draw the design in detail upon the surface to be covered, though it may be well to rule in a few leading lines, to prevent the work becoming inaccurate. If, however, the operator intends to work merely from a sketch, or from a print, it will be better to rule the paper with lines, of the same width apart as the width of the bands and tesserae, intersecting each other at right angles, as shown in Fig. 1; by the aid of these lines, little difficulty will be experienced in arranging the details of the pattern as the work goes on.

Before laying on the straw, the ground must be brushed over by means of a camel-hair pencil, with a strong cement; the one we should recommend may be formed by dissolving isinglass in acetic acid: on this the bands and tesserae must be neatly laid in their places; and as the small size of the latter will render their removal with the fingers difficult, it will be well to use a box-wood point to take them up, the end of which has been first touched with the cement. When laid in their places, the pieces must be flattened down together with a hot smoothing-iron, a piece of thin, clean paper being laid over them. If they are attached to paper, they should, when the sheet has been again cemented to its place on the wood, cardboard, &c., be again ironed down.

For this description of work those patterns are generally the best which can be executed in straight lines only, and the different varieties of the fret may always be used with excellent effect in it as borders; of this we give examples in Figs. 2 and 3; in Fig. 4 we give a design in which straight lines only are also employed; in Fig. 5 we have treated a

subject which is not, in our opinion, so well adapted for straw mosaic; but as the imitation of flowers is always pleasing to ladies, we have given some in this design. In such a material, it is, of course, utterly impossible to give the graceful lines and delicate drawing which constitute one half

of the beauty of these natural objects, and the only way in which curves can at all be approached is by dividing the tesserae diagonally in the manner shown, which is somewhat of a delicate operation, as there is danger of splitting the straw; it is, however, possible for an exceedingly skilful operator to accomplish curves by very careful cutting and fitting together, but this is too delicate and difficult a thing for the amateur generally to perform. In this design the flowers should be represented as nearly as is possible in their natural colours, while the ground is filled up with long horizontal bands of straw of its ordinary tone.

Any designs for German wool-work in cross-stitch may be carried out in straw mosaic, and any articles in Tunbridge ware

may be imitated in it, and a far better effect than that of the originals produced. Straw mosaic is applicable to all the small fancy objects produced in the material last spoken of; it may be used upon work and toilette boxes, caskets, small cabinets, card-cases, hand and pole-screens, and numberless other objects which will suggest themselves to the fancy of the operator, and its brilliancy and beauty will be such that he can scarcely fail to be pleased with the effect of his work.

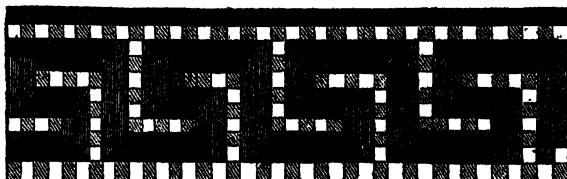


Fig. 3.

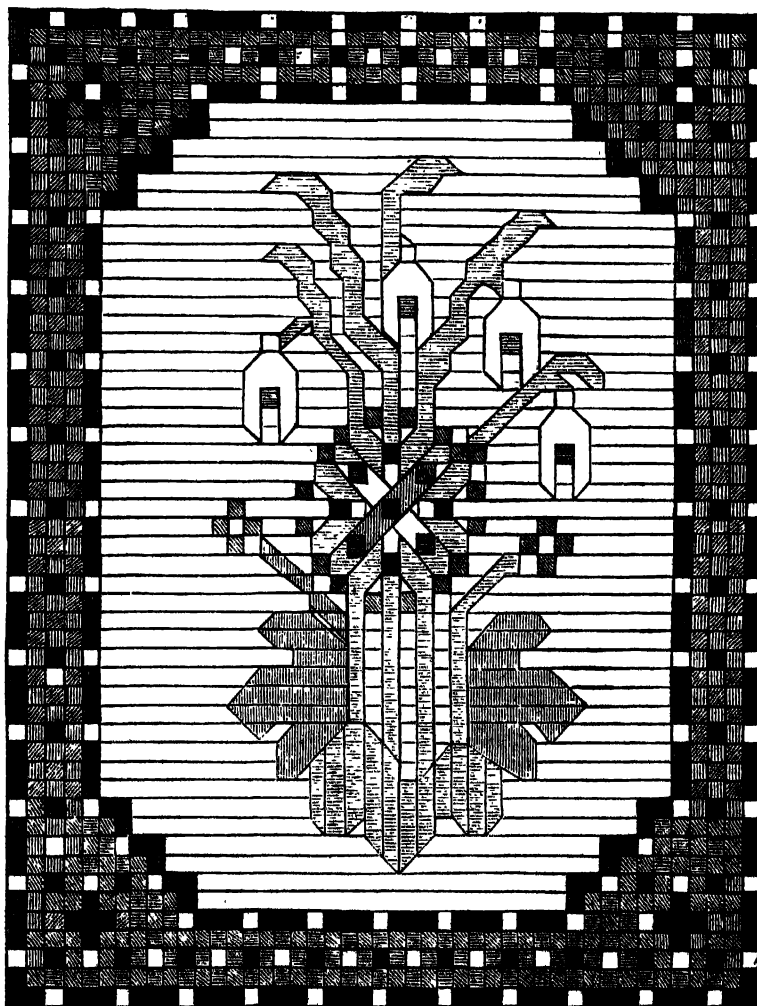


Fig. 5.

THE SICK-ROOM AND NURSE.

IV.

Rubbing an affected spot to reduce swellings is often recommended with the use of liniments. This operation need not be so painful as is generally supposed; the effort should simply be directed to produce gentle friction with the palm of the hand. If the liniments prescribed are of an irritating nature, the nurse should wear an oiled skin glove. About ten minutes at a time is generally long enough for the rubbing process. Hartshorn and oil, and soap and camphor liniments, are frequently prescribed.

Fomentation is the repeated application of flannel, saturated in hot water or other fluids, such as poppy-water, &c. The chief precaution to be observed in fomenting is to keep the patient dry, otherwise more harm than good comes of the process. A waterproof cloth, a piece of leather, or several thicknesses of coarse strong linen should be placed beneath the patient or round the part affected, to prevent any moisture from touching the rest of the body. The flannels used for fomenting should be wrung as dry as possible from the liquid, and applied whilst hot. If the wet flannel, after being applied, be covered with a piece of waterproof cloth, the heat will be retained much longer than by any other means, and from ten to twelve minutes may then elapse before applying another flannel. Two flannels should be in use, the one saturating in the hot liquor whilst the other is on the patient: as speedily as one is removed the other should be replaced. A "dry fomentation" consists in bags containing salt, or camomile flowers, hops, &c., being applied. The bags should be made of thin or very old flannel, and may either be heated in a slack oven or old iron saucepan, or by being turned before an ordinary fire.

A *Local Vapour Bath* is an invaluable remedy in some diseases, and is very easily applied. The patient should be placed on a low seat near a fire, on which a kettle one-third full (or less) of boiling water is placed. A long cone (open at both ends) made of brown paper, or any other kind sufficiently thick, should be used. The shape of the cone should be like that of a grocer's sugar-bag—a half-sheet *Times* supplement is about the size—and the broad end directed to the spout of the tea-kettle, through which the steam may pass out at the narrow end. The nurse should bring the column of steam to bear upon the desired place. If too hot, she should manage to have less steam by slightly moving the patient backward. This impromptu kind of vapour bath is very useful in all cases where the respiratory organs of young children are affected by cold, and when the application of plaisters and poultices is almost impossible. After the patient has been vapourised for about ten or twelve minutes, the spot to which the steam has been directed should be covered with cotton wool, and bandaged with a silk handkerchief. The patient should then be put to bed. In cases of tooth or ear ache, the above remedy far surpasses the slow and unsatisfactory method of holding the face over a jug of hot water.

Leeching is not in such general favour at the present time as the practice was formerly; still, all nurses have need of some experience in the matter. The best leeches are to be had of medical men, who choose them with care. There are several kinds of leech; those used for medicinal purposes are striped with six stripes of yellow from the head to the tail, and the belly is of steel-blue colour, with yellow spots. Before applying leeches they should be left for some time to crawl about on a coarse cloth, or in a wooden box having holes in the lid for admitting fresh air. When placing a leech on, the nurse should hold it by the tail in a piece of linen, leaving its mouth free, over the affected part. If the leech show an unwillingness to fix itself, the place should be slightly damped with a little sugar and water, or milk. If that

inducement fails, a little scratch with a needle to draw blood will generally answer the purpose. Sometimes leeches will not fix at first, but if left to crawl about a little time in freedom, they will bite without further trouble. When once settled they should not be touched, but left to drop off when full. The usual mode is then to place them on a plate, and sprinkle a little salt on their heads to assist them in vomiting. As soon as this is accomplished, the leeches should be left to swim about in plenty of clean cold water till they get quite rid of the salt. Leeches may be kept a long while in a bottle of water, with a piece of muslin tied over the top. The water should not be changed too often. When the leeches have been removed, bleeding is sometimes very copious, and if unusually prolonged, the assistance of a medical man should be sought to arrest the loss of blood. In ordinary instances, all that is required of the nurse is to place a warm bread-and-water poultice over the bitten part, instead of sponging with hot water. The poultice may require changing every half hour till the bleeding ceases. When leeches are ordered to be applied to the gums for toothache, the leech should be placed in a glass sold at chemists' shops for the purpose, and kept in that position till bleeding is accomplished. The gum should be previously cleansed with warm water.

Attendance at the bedside of a sufferer not only requires a vast amount of patience on the part of the nurse, but knowledge of the best means to effect the desired object. Taking the position of a sick person when lying in bed, for instance, no situation can be more helpless and dependent on the good offices of the nurse; yet with the best will in the world, the latter may be unable to do all that is required to secure the comfort of her charge, unless experienced in her work, or well-informed by people who have had practice. In this case, as in many others, the medical man will generally be found a willing ally; a really kind-hearted and skilful doctor never failing to give advice in the most trivial matters connected with the discharge of his profession.

It cannot be too frequently impressed on the mind of the friends and relatives of sick persons that the chances of restoration to health lie fully as much in the ability of the nurse to carry out the doctor's orders as in his skill to prescribe. In households where no one is competent to undertake the charge of a patient, some assistance ought to be sought at the hands of professed nurses. There are happily several institutions now in different parts of the country where this want is met by a body of trained nurses—kind-hearted, intelligent, and trustworthy—by whom attendance on the sick is regarded as a noble calling, and a fit sphere for high-minded women. Worthy of all respect and confidence are such labourers!

To the unprofessional nurse there are numberless little requirements on the part of the patient which, although commonplace enough in themselves, demand some tact to perform with ease to the sufferer. Changing the sheets of a bed, for example, is a simple act enough to do for a person in health, but difficult when a weak and helpless sufferer is in question. In the first place we would suggest that in sickness large sheets should be discarded altogether. It is almost impossible to make use of them without an unnecessary amount of fatigue and exposure to chill of the patient. In every household there should be a reserve of old linen and worn sheets, kept expressly for emergencies in the sick room. In a forthcoming article the subject will be more fully discussed; but for the present we may simply remark that small sheets are preferable to large ones—by small is meant sheets of half, or even one quarter of the size usually used. Of course all linen destined for use on a bed of sickness should not only be thoroughly aired, but put on the bed whilst warm. If the changing of an under sheet be required, and the patient is too feeble to assist himself by getting out, or

passing from side to side of the bed, the nurse should roll the clean sheet lengthwise, leaving sufficient only unrolled to reach the body of the patient. She should have an assistant on the opposite side of the bed, to draw the unrolled end towards herself, whilst the nurse raises the patient until sufficient sheet is spread beneath. In changing the top sheet, the soiled sheet should be gently withdrawn at the foot of the bed (underneath the rest of the coverings), without exposing the patient, and the clean sheet replaced from the outside. This can easily be done by folding the sheet lengthwise, and then laying it, when so folded, underneath the bed coverings. Sufficient sheet should be left unfolded to "turn over," and the rest should be gradually unrolled by the nurse and her assistant at the opposite side of the bed, under the bed clothes. By this means the great risk of taking cold by a change of bed linen is effectually avoided. Bolsters, in sickness, should not be rolled in the sheet, as is customary at other times. The least fatiguing mode of changing the bolster covering is by having it in a loose case like a pillow-case. Pillows should be changed only one at a time, and slightly warmed before replacing them.

It is a good plan, when sheets have been changed, to put a bed-bottle filled with hot water into the bed, until the chance of any chill being felt is over. The best bed-bottles are made of stoneware, and should be enveloped in flannel. A flannel covering made to fit the bottle is the most suitable, and is easiest to use. A bed-pan is also indispensable. This should also be covered with flannel, to prevent the chill of the earthenware caused by close contact with the sufferer. In some cases the patient is too much enfeebled by suffering to raise himself at all. In the latter case a large sponge, of the kind called "stable sponge," should be used instead of the pan. A waterproof sheet laid immediately beneath that on which the sufferer lies is absolutely necessary. Gutta-percha cloth will answer the same purpose, if expense be an object. Another very useful utensil on a bed of sickness is a feeding-cup, through which liquid can be given to the sufferer without the trouble of the head being raised. Small earthenware cups are made for the purpose. Those only partly uncovered at the top are the least liable to let the liquid overflow. If such an appliance should not be at hand, a small ordinary teapot may supply the want.

STATIONERY.—I.

THERE are many facts connected with those articles of everyday use which we class under the general head of stationery little known to most persons, but still of general interest, and likely frequently to be of considerable practical use to all who require to employ and purchase such things.* We may instance the most important of these articles—paper. Few, we imagine, of our readers have very definite ideas of the meaning of the terms applied to its various qualities and sizes. To most persons such expressions as "cream-laid" or "double elephant" appear merely as fanciful appellations, and are not known as recognised and generally-received terms; yet a knowledge of the different descriptions of this article would be most valuable to all those who have to inquire for them at shops, since it would enable them to know definitely what quantities and sizes would suit their requirements, and to ask for them with precision. On these, as well as on various other points, we shall therefore offer some remarks to our readers.

Paper.—In paper there are three principal classes—writing, printing, and wrapping papers. Of writing paper there are essentially but two kinds—*wove* and *laid*. Wove paper has somewhat the appearance of calico when looked through, whilst laid has a ribbed look, from the marks of the wires; and these two kinds have again other sub-

divisions. In wove papers we have "blue wove," from its being tinted with that colour; "yellow wove," which has a slight blue tint, and was formerly known as "Bath post;" and "cream wove," which is a colourless paper. With these "blue laid" and "cream laid" correspond, but there is no ribbed paper to answer to the "yellow wove."

Writing papers are made to five principal sizes, which all have their distinctive water-marks. It must be remembered, however, that in speaking of the size of a sheet of paper it is supposed to be laid open and flat. The smallest size made is "pott," which is 15 inches by 12½ inches; formerly it bore as a water-mark a flower-pot, whence it derived its name, but this has since been exchanged for a crown-surmounted shield. This paper is made in all the five sorts mentioned above, and of all the various qualities, viz., common, fine, superfine, and extra superfine.

The second size, "foolscap," averages about 16½ inches by 13½ inches. Its somewhat eccentric name, which puzzles many people, was derived from its original water-mark of a cap and bells; instead of this, the foolscap made at the present day bears the figure of Britannia. This paper is adapted to an infinite variety of purposes, such as authors' manuscripts, legal documents, printed forms, account-books, and copy-books; this is also made of all the five sorts and the four qualities. Sometimes "double foolscap" is made of twice the above size; there is also a variety of foolscap known as "brief-paper," which has a marginal water-mark line down the longest left-hand side, from which others run at right angles; this is only made in blue wove.

The third size, "post," measures 19 inches by 15½ inches. This is the paper most used for correspondence, and its watermark is a shield bearing a post-horn, surmounted by three *fleurs-de-lis*. Ordinary letter paper is quarto post, that is, folio post reduced to half size. Note paper is octavo post, or the letter size again divided and folded. Bank or foreign post is a thin description of this paper specially intended for foreign correspondence; this is chiefly made in blue and cream wove, but post generally is largely made of all the sorts and qualities.

The size of "copy" is 20½ inches by 16 inches, and it bears for a water-mark a *fleur-de-lis*. This paper, which is only made in blue wove and blue laid, and of fine and extra superfine qualities, is almost confined in its use to the legal profession. The quarto size of this, with rough uncut edges, is known as "draft paper."

The fifth size is "large post," which bears the same water-mark as small post, and measures 21 inches by 16½ inches. Large post is chiefly sold of quarto size. Large foreign post is extremely thin, very strong, and highly glazed. It is little made in England, as our own manufacturers cannot compete with those of the Continent in cheapness and finish, as applied to this description of article, and our supplies are derived from France and Germany. Large post is made of all sorts and qualities.

Other papers, which are still included among writing papers, are used for making account-books and for drawing. For the former and some other purposes "demy," "medium," "royal," "super-royal," and "imperial" are used. "Demy" measures 20 inches by 15½ inches; medium, 22 inches by 17½ inches; royal, 24 inches by 19½ inches; super-royal, 27 inches by 19½ inches; imperial, 30 inches by 22 inches. Of these, royal bears as a water-mark a transverse bar in a shield, surmounted by a *fleur-de-lis*; the others a *fleur-de-lis* in a shield, surmounted by another. These papers are usually made for the above purposes in blue laid; papers are also made of the same sizes in cream wove, but they are then called and used as drawing papers, and as such are continued in the following larger sizes:—"Elephant," which is 28 inches by 23 inches; "Colombier," 34½ inches by 24 inches; "Atlas," 34 inches by 26 inches; "double

elephant," 40 inches by 26½ inches; and "antiquarian," 53 inches by 31 inches. Unlike all other papers, which come from the mill folded with the two ends together, drawing papers are always sold flat; and as a water-mark might interfere with the design to be placed upon them, none is used except that, in the best qualities, the date and name of the maker are inserted in the extreme corner. Some of the sizes of drawing paper, especially imperial and double elephant, have three degrees of finish—first, a coarse, highly-granulated surface termed "rough;" second, an ordinary unrolled surface termed "not;" and, third, a hotpressed surface, without any special name. Antiquarian is, from the extreme difficulty of making it perfect, the most expensive paper manufactured; and, unlike other kinds of paper, the descriptions used for drawing are much more frequently hand than machine made.

The class of printing papers, which comprises all that is used for gold, silver, and coloured papers, and for the covering of cardboard, as well as that employed for maps, and for all kinds of steel, copper, wood-block, and lithographic, as well as letterpress printing, is made in an endless variety of thicknesses and qualities. The ordinary sizes of printing papers—which, also, according to the number of times they are folded, determine and give names to the sizes of books—are as follows:—"Demy," 22½ inches by 17½ inches; "medium," 23½ inches by 18½ inches; "royal," 25 inches by 20 inches; "super-royal," 28 inches by 20 inches; "imperial," 30 inches by 22 inches; "double foolscap," 27 inches by 17 inches; "double crown," 30 inches by 20 inches; "double copy," 33 inches by 20 inches; "double demy," 35½ inches by 22½ inches; and "double royal," 40 inches by 25 inches; but the requirements of the newspaper and periodical press have called into existence a number of additional sizes, which have no definite names or dimensions, and which are known as "mags," and "nondescripts."

In the third class, that of wrapping paper, there is a great variety of sorts, qualities, and sizes. Whitey-brown paper, which is more properly known as "small hand," is of three qualities—common, Scotch, and fine. Common varies in size from 21 inches by 13 inches to 30 inches by 20 inches; this is much used by haberdashers, &c., for wrapping up small parcels. Scotch is rather thicker, its largest size is 30 inches by 20 inches, and its smallest 21 inches by 13 inches. Fine, which is chiefly made in Buckinghamshire, and which is principally used for such purposes as making bakers' paper bags, is 30 inches by 20 inches.

Cartridge papers are distinguished by having a fine and high colour, generally either cream, grey, or snow-white, by freedom from spots and specks, and especially by their great toughness. On these papers the expensive process of "air-drying" is practised, which consists in drying the sheets separately on lines in the air, instead of upon a hot cylinder; this is resorted to for the purpose of securing the last-named quality. In these papers there is a wide range of qualities, from common, rough, whitey-brown, to a white, clean, and smooth substance, very little inferior to drawing-paper, and, indeed, frequently used by artists as a cheaper substitute for that material. "Hosiery cartridge" is much used in manufacturing districts; it is buff, and made of a very tough quality, to resist the cutting of string.

Brown papers should, to be good, be made entirely from tarred rope, tarpaulin, and coal-sacks; but in the modern cheap sorts the colour is not the native colour of the material, but is derived from an admixture of various ochres. These have a paler colour, and are far less strong than the darker and more expensive kinds. The following are the sizes of brown paper:—"Kent cap," 22 inches by 18 inches, and "Havon cap," 26 inches by 21 inches, both of which are falling into disuse; "bag cap," 24 inches by

20 inches, and "imperial cap," 29 inches by 22½ inches, both of which are used for innumerable purposes, and especially the latter, which is the brown paper most extensively made; "double 4 lb.," 31 inches by 21 inches, which has a limited use, and is chiefly employed for paper bags; "double bag cap," 40 inches by 24 inches, which is not much in use, and rarely met with; "double imperial," 45 inches by 29 inches, which is nearly as much used as "imperial cap;" and "casing," 46 inches by 36 inches, which is used by warehousemen and packers. In addition to these, there is "roll brown," which is commonly kept on rollers in lengths of 12 yards, but which may be had of any length up to 300 yards; it is of three sizes—"full-width," 68 inches wide; "middle-width," 3½ inches; and "narrow-width," 22½ inches. This is used for putting under carpets, for tailors' patterns, and as a first lining for defective walls. "Tip" is intermediate between brown paper and millboard, and may be had in the sizes of "double imperial" and "casing."

ODDS AND ENDS.

French Mode of Cleaning Kid Gloves.—The easiest and best way to clean a kid glove is to stretch it on the hand or on a stick, and then carefully rub it with a piece of moist flannel, on which a little powdered soap has been applied. When the dirt has been cleaned off the glove, the moisture is to be removed with a piece of dry flannel.

Boiled Herrings.—Few fish are more delicious than a fresh herring boiled. Clean out the gills; and as the fish is very delicate, be sure the saucepan is exquisitely clean. Put the fish in warm water three-parts towards boiling, and a sprinkling of salt, but not much, in the water. Let it boil moderately, fast, and do not let it stand an instant in the water after it is done. Serve it on a strainer or napkin to draw off the water. It has as fine a flavour as mackerel, and is more digestible; it is so rich few persons can eat melted butter with it, which, if used, may have shrimps or anchovy in it. A mild Yarmouth bloater boiled is another rather uncommon dish liked by many.

Oil for Watches and Delicate Machinery.—Take a piece of sheet lead, scrape the surface perfectly bright, and introduce it into a bottle of the purest olive oil. The bottle is then to be exposed to the action of the sun's light for some weeks, during which time it will deposit a quantity of mucilage on the surface of the lead. When it is found that the oil has deposited all the mucilage it contained, it is to be carefully poured off, and preserved in stoppered bottles. Oil thus prepared may be kept for years without turning rancid, or becoming thick when exposed to the action of the atmosphere.

To clean Decanters and Water-bottles.—When a water-bottle has contained hard water for a considerable time, it becomes coated in the interior with a deposit of carbonate of lime, mixed with any other matters that the water may have contained. The easiest way of removing this is to add about a teaspoonful of hydrochloric acid (spirit of salts), and rinse round the bottle with it. It will then be found that the instant the acid comes in contact with the deposit it immediately removes it, and forms a clear solution of chloride of calcium. The bottle should then be rinsed in plenty of clean water. After a decanter has held port or other wines for a long period, a deposit of colouring matter will be thrown down on the surface of the glass. This may be easily cleaned off by a little sulphuric acid (oil of vitriol). A solution of caustic potash, prepared by acting on pearl ash by quick-lime, is sometimes directed to be used for this purpose, but it is not to be recommended, as it has a tendency to corrode the glass.

MAKING WALKING-STICKS.

A HANDLE to a straight stick should be turned by boiling that portion of it from ten minutes to a quarter of an hour in a large pot or copper; then bending it round a circular piece of wood, to give the required curve, and tying it firmly, as shown in Fig. 1. The bending should be done gradually, or there will be danger of breaking those fibres of the wood on which the strain is greatest, and of injuring the bark. The tie should be allowed to remain for some weeks, till the wood has become perfectly dry, when the string and superfluous part of the stick may be cut away. Oak plants, when used for walking sticks, should have the bark removed, which will be done most easily if they are cut in May. Nothing makes a better-looking stick than common blackthorn; on this the bark should always be preserved, and the knots trimmed off not too closely; other sticks which look well in the bark are holly, whitethorn, cherry and hazel. Sticks hooked in the above manner, give the best handles to walk with, and, if not too large, make good riding sticks; but a good knotted stick may be cut from a shoot of black or white-horn (such as shown in Fig. 2), by cutting away the larger branch from which it springs, above and below (as shown in Fig. 3), and scraping the hook thus formed smooth with a piece of broken glass, and rubbing it down with sand-paper. A coat of varnish should finally be given to every stick, to improve its appearance, and increase its durability.



COOKERY.—LXXVII.

FRENCH DISHES (continued from p. 107).

Ecrevisses de Mer (Crabs).—To fit for the table, living crabs require to be boiled in either sea water, or water to which salt has been added. They are either placed in cold water, which is then made hot, or put at once in boiling water; crabs cooked by the latter method being found to have the finest flavour. The male crab is the most valuable for the table, and may be distinguished by possessing larger claws. In purchasing crabs in the living state, reference should be given to those that have a rough shell and claws. When selecting a crab which has been cooked, it should be held by its claws, and well shaken from side to side. If it is found to rattle, or feels as if it contained water, it is a proof that the crab is of inferior quality. The crab may be kept alive out of water for two or three days.

Choucroute (Sourkrout).—Take some good cabbages, remove all the green outer leaves, and cut them up in thin slices. Allow them to remain in a tub for at least a day; sometimes a longer time is required, but the period must never exceed twenty-four hours. The pieces of the cabbage are now compressed, to remove as much as possible of the water they contain. Some salt is then spread at the bottom of an earthenware jar, and then a layer of cabbage is spread over it. On this is sprinkled a handful of powdered salt, a little pepper, and some very ripe juniper berries, and more cabbage is placed on it. This is to be continually repeated until the vessel is three-parts full. A perforated cover, smaller than the interior of the jar, is then to be placed on the top of the contents, and a number of heavy stones are placed on it, so as to strongly compress the materials on which the cover rests. It is necessary to be careful to employ stones that do not contain lime, otherwise they would partially dissolve in the acid liquid produced by the fermentation

of the cabbages, and thus give it a disagreeable taste. At the end of a week the water given out from the vegetables will be found to have collected on the top of the perforated lid. Soon after this the water will become covered with a scum, which will show that the sourkrout is ready for use. The lid and the stones that cover it may then be removed, and as much of the sourkrout as may be required taken out with a wooden fork. The lid is then replaced, again loaded with the stones, so as to compress the cabbage and keep it beneath the surface of the water. A thick cloth is then made wet, and tied over the mouth of the jar, so as to prevent the access of air as much as possible. Whenever any of the contents are removed from the jar, the precaution of replacing the lid and wet cloth must always be taken. It is also necessary to remember to wash the cloth in clean water each time it is taken off, before it is replaced. The water may also be occasionally removed from the jar, since it is only necessary that the vegetables should be covered with the fluid. The sourkrout should be kept in a cool and dry cellar, and it will be better if the mouth of the vessel can be covered with an earthenware lid, placed over the cloth.

Tomates (Tomatoes).—To preserve tomatoes, cut them into pieces, and place them in a vessel over a moderate fire. Allow them to boil down, until they become reduced to a pulp. Squeeze the pulp in a strong cloth, so as to extract all the juice it contains. Evaporate the fluid thus obtained, until it becomes reduced to the consistence of a sauce, and pour it into small bottles. These bottles must then be placed in cold water, over a good fire, and allowed to boil for a quarter of an hour, when the mouths of the bottles must be secured with good corks, and waxed over.

Abricots (Apricots) may be preserved for the table by selecting the ripe fruit, which must not be too hard, and dividing them into quarters; then cover them over with powdered sugar, in the proportion of two ounces to each pound of fruit; let them remain in a dish for two hours, and then put them into wide-mouthed bottles, which must be exposed to heat in cold water, as directed for tomatoes, until the water boils.

Pêches (Peaches) may be preserved in the same manner as apricots.

Framboises (Raspberries).—To preserve this fruit, cover them with half their weight of finely-powdered sugar; let them remain for an hour, and then place them in a coarse wire sieve, and beat them up with a spatula, so as to cause the soft pulp of the fruit to pass through the meshes. Mix some lemon-juice with the pulp, place it in bottles, and proceed as directed for apricots and peaches.

Fraises (Strawberries) are preserved in a precisely similar manner.

Prunes (Plums).—To preserve plums, cut them into two pieces, and remove the kernel. Place them on the fire in a jar surrounded by hot water, and allow them to boil. Then add to each pound of the fruit one ounce of crushed sugar. When the sugar is dissolved by the hot juice, and the whole is well mixed together, preserve in wide-mouthed bottles.

Chasselas (Grapes).—This fruit is best preserved in paper bags. A thread is passed through the stalk of each bunch, and the fruit introduced into a large bag made of thin paper. The mouth of the bag is now closed round the thread, and secured with string. The grapes are to be hung up by the thread to the ceiling of a cool room, where they may be preserved at as low a temperature as possible, until required for use.

THE HOUSEHOLD MECHANIC.—LIII.

PLASTERING, CEMENTS, ETC.

PLASTER is a composition of lime, sometimes mixed with hair, sometimes with sand, and sometimes with both hair and sand. It is employed for filling up the crevices left by the bricklayer and the carpenter, or occasioned by settling; for covering walls with a smooth coat; and for the laying of ceilings. It is further employed for the covering of exterior walls with stucco, imitative of stone; and for the furnishing of mouldings, ornamental and plain.

Good plastering is to be distinguished by its exquisitely smooth and finished appearance, both as regards regularity and correctness, and by its solid effect, having no cracks, nor indications of cracks, visible.

There are various kinds of plastering, such as white lime and hair-mortar on bare walls; the same on laths, as in partitioning and plain ceiling; renewing the insides of walls, or double-partition walls; rough-casting on heart-laths; plastering on brick-work, with finishing mortar, in imitation of stone-work; and the like upon heart-laths; modelling and casting ornamental and plain mouldings, and making and polishing the scagliola for columns of wood or brick.

Plaster-work has sometimes two coats only, but at other times is "set" in addition. The first coat on brick-work or stone is termed "rendering," and on laths, "laying." The surface of the first coat is generally rendered rough by sweeping it with a bass-broom, and it is afterwards "pricked-up."

Tools.—The tools required for plastering are a spade or shovel of the usual description; a rake with two or three prongs bent downwards from the line of the handle, for mixing the hair and mortar together; trowels of two kinds, and various sizes; "stopping" and "picking-out" tools; rules called "straight-edges;" and wood models.

Plasterers' trowels are more neatly made than the tools used by other artificers; they are of two sorts—viz., the "laying" and "smoothing" tool, which consists of a flat piece of hardened iron, about ten inches in length and two and a half inches in width, very thin, and ground to a semicircular shape at one end but left square at the other; on the back of the plate, near the square end, is riveted a small iron rod, with two legs, one of which is fixed to the plate, and to the other a round wooden handle is adapted; with this tool all the first coats of plastering are laid on, as is also the last, or the "setting," as it is technically denominated. The other kind of trowels, which are made of three or four sizes, are for gauging the fine stuff and plaster used in forming cornices, mouldings, &c. The longest size of these is about seven inches in length on the plate, which is of polished steel, and two and three-quarter inches broad at the heel, diverging gradually to a point; to the heel, or broad end, a handle is adapted, commonly of mahogany, with a deep brass ferrule. The smaller trowels are fitted up in a similar manner, but they gradually vary in size downwards to the length of two or three inches.

The "stopping" and "picking-out" tools are all of polished steel, of various sizes, though most generally about seven or eight inches in length, and half an inch in breadth, flattened at both ends, and ground away to somewhat of a round. These tools are used in modelling and finishing mitres and returns to cornices, as likewise filling up and perfecting the ornaments at the places where they join.

The "straight-edges" are used for keeping the work in an even or perpendicular line; and the models, or moulds, are for running plain mouldings, cornices, &c. Of these last the plasterer requires a great number, as very little of his finishing can be completed without them. With a good mould, an adept in his profession may execute most

exquisite mouldings, possessing a sharpness and breadth unequalled by any other method now practised.

Tools should be kept very clean; after being used they should be wiped from the plaster that cleaves to them before being put away, and should be daily polished.

Composition of Plaster.—Lime constitutes the most important ingredient in all operations of plastering, pervading, as it does, the whole. Most lime used in London is prepared from chalk brought from Purfleet, in Kent; but for stuccoing and other works requiring strength and permanency, that which is made at Dorking, in Surrey, is far to be preferred.

Sulphate of lime, or gypsum, forms the basis of fine or finishing plaster. It generally passes under the name of "plaster of Paris," by reason of the hills of Montmartre, which are in the vicinity of Paris, containing it in abundance. Much, however, which is used in London is prepared from a sulphate of lime brought from the hills of Derbyshire. Gypsum in its natural state is a fossil stone, but it is first burnt, and afterwards calcined to powder. When required for use it is mixed with water, so as to reduce it to a thin paste. It quickly sets, with a considerable increase of bulk. Plaster of Paris is sometimes considered too expensive, and consequently a substitute is formed by mixing a composition of chalk-lime and other ingredients. This composition is generally made of chalk-lime, prepared as common mortar, but slacked with a great deal of water, afterwards evaporated.

There are several kinds of cements used for plastering. The first is termed "coarse stuff," and is that which is first laid on the walls. It is mixed with sand of different degrees of fineness—coarse for the first coats, and finer for the finishing. This plaster is prepared like common mortar, but it requires the addition of hair. The hair is either bullocks', cows', or calves', and is procured from tanners, by whom it is usually sold wet at a shilling per heaped bushel; but the retailers sell it at the rate of one shilling and fourpence per bushel dried and threshed out, one bushel from the tanner's making two when dried and threshed. The plaster having been properly mixed, the hair is worked in with one of the rakes we have described.

Another kind of cement used for plastering is termed "fine stuff," and consists of lime in a pure state. The lime is first slacked with a small quantity of water, by degrees brought to the consistence of cream, and then saturated with water. In this semi-fluid state it is allowed to remain in a large tub, or vat, until the water has so far evaporated as to leave a consistency fit for use. When particular strength is required, a small proportion of hair is sometimes worked in with the rake before the cement is applied.

A third kind of cement is made for the finishing of interior walls, intended for painting, by mixing the last-named cement—fine stuff—with some very finely-washed sand, in the proportion of three parts fine stuff and one part sand. This cement passes under the name of "trowelled" or "bastard stucco."

A fourth kind of cement is termed "gauge stuff," and consists of three-fifths fine stuff and one-fifth plaster of Paris. This cement should be mixed in small quantities at a time, by which means it more readily sets.

In cases when work is required to be completed in the shortest time possible, a proportion of plaster of Paris should be mixed in all the cements, as the addition of it greatly accelerates speed in drying. If plaster of Paris be used solely for "gauging," it will set almost immediately. The composition should therefore be constantly sprinkled with water to keep it moist, as the plaster of Paris causes the fine stuff, or putty, to set very rapidly. It is therefore desirable to finish one length at a time, whenever possible.

Cornices and ornaments are formed of plaster of Paris, and will be spoken of under their respective heads.

It is to be observed that the lime used for plastering should be always thoroughly slacked, otherwise blisters and cracks, occasioned by unequal setting and contraction in drying, are likely to result. The saltpetre of plaster is of frequent occurrence. Nitrate of potash is often generated in new walls, and breaks out or effloresces upon the surface. This defect is most commonly occasioned by the use of sea-sand, which is very likely to produce it. Such breaking-out of walls is termed "saltpetre rot," as it is supposed to arise from the presence of salt-petre, nitrate of soda, and chloride of potassium. In all cases, however, the cause has not been determined.

The art of plastering has necessarily a good many divisions, which have their respective technical names, such as "rendering," "laying," "pricking-up," "lathing;" "lathing, laying, and set," or "lathing, plaster one-coat, and set;" "lathing, floated, and set," "lathing, laying, floated, and set," "rendering and set," "rendering, floated, and set;" "stucco," "bastard" or "rough stucco;" "trowelled stucco," "rough-casting" or "rough-wall," &c. By these terms the quality of work is designated, and its value represented. There are other technical words applying to this art, such as "set" or "putty," "screed," "scagliola," "pugging," "filling-out," &c.

There are three great classes of common plastering, viz., *one-coat work*, which consists of "rendering" on brickwork, and "laying" on laths; *two-coat work*, which consists of "render, set," or "lath, lay, and set;" and *three-coat work*, which is "render, float, and set," or "lath, lay, float, and set."

Rendering.—This is the covering of a wall, whether brick or stone, with a coating of "coarse stuff," otherwise termed "lime and hair," the walls having been left rough, and not drawn smooth with the trowel, for the purpose of allowing the plaster, or cement, to adhere. Before applying a second coat, the surface of the first should be swept over with a bass-broom to render it rough. Old walls which require re-plastering should have the mortar raked out, in the same manner as is done for re-pointing, and the surface of the brickwork should be roughened by stabbing or pricking it over. The dust should be brushed well off the surface, and the wall wetted, before applying the new plaster. The plaster should be in a more fluid state than is required for new work. A very coarse brush should be used for this purpose. In applying plaster, it must be observed that the second coat should be applied before the first is quite dry.

PERFUMERY.—III.

THAT well known and once fashionable perfume known as *Lisbon Water* is composed of oil of orange-peel, half an ounce; oil of lemon zest, two drachms; otto of roses, fifteen drops; rectified spirits of wine, one pint.

A pleasant and cheap scent of a similar character may be thus made:—Oil of orange-peel, a quarter of an ounce and oil of petit grain one drachm, mixed with half a pint of rectified spirits of wine.

Eau de Portugal, or Portugal Water, also owes much of its peculiar scent to the large quantity of the oil of orange-peel it contains. The following is a good form for preparing this perfume:—Essential oil of orange-peel, one ounce; oil of lemon zest, a quarter of an ounce; oil of bergamot, one drachm; otto of roses, eight drops; rectified spirits of wine, one pint. For preparing this perfume the French spirits of wine, which is made by the fermentation of grapes, is much superior to any other that can be employed.

Hungary Water, another well-known and once very favourite scent, derives its perfume from the presence of oil of Hungarian rosemary, and also to the grape spirit with which it is made. The following is the formula

usually employed:—Oil of Hungarian rosemary, a quarter of an ounce; oil of balm, one drachm; the same weight of oil of lemon-peel; four drops of oil of mint, dissolved in one pint of grape spirit. When solution has taken place, one ounce of extract of orange-flowers and the same quantity of essence of roses are to be added.

Eau de Miel, or Sweet-scented Honey Water, is a preparation of a similar kind. It consists of one drachm of oil of Portugal, half a drachm of oil of rosemary, the same quantity of oil of thyme, and fifteen grains of benzoic acid, prepared by sublimation, and five ounces of rectified spirits of wine. When dissolved, add half a pint of essence of roses, five ounces of orange-flower water, one drachm of essence of vanilla, forty drops of the essence of musk, twenty drops of the essence of ambergris; mix them together, and shake the bottle for some minutes, then add five ounces of orange-flower water.

Eau de Miel may also be prepared by a different form, as in the following recipe:—Add to one pint of rectified spirits of wine two grains of musk, a grain and a half of ambergris, both of these ingredients having been previously reduced to fine powder. Then add half a drachm of oil of bergamot, fifteen drops of oil of lemons, five of oil of cloves, and four drops each of the oils of rosemary and English lavender. Add, also, five ounces each of the essences of orange-flowers and roses. Mix the whole together, and allow them to remain for a fortnight before using the perfume. The vessel containing it during that time should be frequently shaken.

The perfume called *Esprit de Primrose*, or occasionally, Cowslip, or Primrose Perfume, is a preparation of oil of bergamot, one drachm and a half; oil of lemon, thirty drops; oil of petit grain, fifteen drops; oil of jasmine, fifteen drops; oil of cloves, ten drops; essence of ambergris, six drops; rectified spirits of wine, half a pint.

That well-known compound, *Esprit de la Reine*, is thus prepared:—Oil of bergamot, two drachms; otto of roses, fifteen drops; the same quantity of oil of rose geranium, and half that quantity of oil of cassia, dissolved in half a pint of rectified spirits of wine, thirty drops of essence of ambergris being also added to give permanence to the perfume. This perfume is sold under many names, such as the Alexandra Bouquet, Victoria Perfume, and similar titles.

Esprit de Jasmin, a delicate scent, resembling jasmine, is thus prepared:—Mix five ounces of extract of jasmine with an equal quantity of rectified spirits of wine, strengthen the scent with fifteen drops of the best oil of neroli, and give it permanence with fifteen drops of the essence of ambergris.

Esprit de Fleurs, or Essence of Flowers, is also scented with jasmine. It consists of twenty drops each of the oils of jasmine, orange, cassia, and rose, dissolved in three ounces of rectified spirits of wine, the equal quantity of orange-flower water being added. If it is wished for this perfume to have permanence, fifteen drops of the essence of ambergris may be used in its composition.

MODE AND EXPENSE OF ENTERING THE PROFESSIONS.—II.

MEDICINE.

EVERY parent, before deciding upon bringing up a youth to the medical profession, has many things to consider, the chief of which is whether he can afford the heavy expenses that will attend his son's medical education before he can pass his examination and obtain the usual diplomas to practise, and become registered by the General Council of Medical Education. He must also ascertain whether his son has received such a superior education as will fit him to pass successfully through a severe examination, which it is indispensable he should

undergo, before the commencement of his medical studies; and, lastly, has his son such a sound constitution that he can endure the hard work incidental to public appointments, if at the conclusion of his studies he should think it desirable. And he must remember, while he is considering this, the effects produced by broken rest, irregular meals, continued exposure to fevers and other infectious complaints, and similar causes, and the power they have of undermining the health, even of the most robust—often causing them, in the period of their greatest professional success, to relinquish a position gained only by years of mental toil and ceaseless exertion. But let us suppose that it has been decided that a youth shall enter the medical profession, let us see what steps have first to be taken.

Before he can commence his medical studies, he must either be a Bachelor or a Master of Arts at some British or recognised university, or else pass one of the following examinations:—The Responsions, Moderations, Local Examinations (Senior)—the certificate to include Latin and mathematics—held by the University of Oxford; the Previous Examination for a degree in Arts; Local Examinations—the certificate to include Latin and mathematics—held by Cambridge University; examination for first and second years' students; Registration Examination for medical students; Local Examinations (Senior)—the certificate to include Latin and mathematics—held by the University of Durham; the Matriculation Examination held by the University of London; the Preliminary Examinations for graduation in medicine or surgery, held by the Universities of Aberdeen, Edinburgh, Glasgow, and St. Andrews; the Examination of Senior Candidates for Honorary Certificates under the local examinations of the University of Edinburgh; Entrance Examinations of the Dublin and Queen's University, Ireland; examination conducted under the superintendence of the Royal College of Surgeons of England; the examinations in arts held by the Society of Apothecaries of London; the Preliminary Examination in General Education of the Royal College of Physicians and Royal College of Surgeons of Edinburgh; the Preliminary Examination in General Literature of the Faculty of Physicians and Surgeons of Glasgow; Preliminary Examination—certificate to include mathematics—of the Royal College of Surgeons of Ireland; Preliminary Examination in General Education, Apothecaries' Hall, London; examination for a first-class certificate, Royal College of Preceptors. In addition to these, certificates are received from various colonial universities.

The preliminary examinations usually selected by medical students are those of the Royal College of Surgeons of England, the Society of Apothecaries, London, and the Matriculation Examination of the University of London.

The following is an outline of the preliminary examination at the Royal College of Surgeons. The candidate is required to read aloud a passage from some English author, and also write from dictation. He must pass an examination in English grammar, and also write a composition in English on some subject set by the examiners, such as the description of a place, or an account of some useful or natural product. They are required to show a competent knowledge of arithmetic, including vulgar fractions and decimals. The student must then answer questions on the geography of Europe, especially of the British Islands. Then he is examined in English history (the successions of the sovereigns and the leading events of each reign); in Euclid (first and second books) and in algebra, including equations. Afterwards he is required to translate some Latin author.

In addition to the foregoing, the candidate will be required to pass an examination in at least one of the following subjects:—In languages, by translating passages from either Greek, German, or French authors, and answer

questions of the grammar of those languages; mechanics, chemistry, botany, and zoology. This examination is conducted in writing, and the answers must be well written, and free from errors in spelling.

The fee for passing this examination is £2, and students are required to send in their applications at least three weeks before the date fixed for examination.

The regulations of the Society of Apothecaries relative to the preliminary examination is of a similar character. The fee for passing this examination is one guinea, which will not be returned to him if he fail to pass it, but he will be admitted to examination at any future time without paying any additional fee. The subjects of examination are the English language, including its history, structure, grammar, and English composition; the Latin language, and translating from Latin authors; mathematics, with arithmetic, including vulgar fractions and decimals, algebra up to simple equations, and the first two books of Euclid. Candidates are also required to be examined in any one of the following subjects; Greek, French, German, and natural philosophy.

The fee for passing the matriculation examination at the University of London is £2. If he fail to pass the examination this will not be returned to him, but he is allowed to present himself for examination on two future occasions without the payment of any additional fee. The subjects of examination are arithmetic, including vulgar and decimal fractions, and the extraction of the square root; algebra, including proportion, arithmetical and geometrical progression, and simple equations; geometry, including first four books of Euclid; natural philosophy, including an elementary knowledge of mechanics, hydrostatics, pneumatics, and optics; chemistry; Greek (portions of a Greek author to be translated into English, and questions answered on the grammar of the language); Latin, including not only translation of a Latin author into English, but also English sentences into Latin, together with grammatical questions; the English language, including orthography, writing from dictation, and the grammatical structure of the language; outlines of English history to the end of the seventeenth century; modern geography. In addition to these, the candidate must pass an examination in either the French or German language and grammar, or in both these languages should he prefer not to take up Greek.

The question may be asked which of these three preliminary examinations is the best for the student to pass. This will depend on whether he intends to pass the Bachelor (M.B.) or Doctor of Medicine (M.D.) examinations at the University of London. If he has no intention of doing so, of course it would be best for him to pass one of the other examinations, which are easier. But where the student has the requisite time for study, he is strongly advised to pass the Matriculation Examination at the University of London in preference to any other.

When the student has passed one of these preliminary examinations, he is required to produce the certificate of his having done so to the Registrar of the Medical Council in London, or to one of the branch registrars of the division of the United Kingdom in which he may be residing, and he is then allowed to register as a student in medicine. This should be done within fifteen days from the commencement of his medical studies, as no professional study previous to that date will be recognised. It is very important that the student should register as early as possible after passing the preliminary examination; since he will not be allowed to pass the final medical examination for any diploma entitling to practise until the expiration of at least four years from that date. At the time of registration he is also required to give in a statement of his place of medical study, and a certificate of age. Further information will be given in another paper.

ODDS AND ENDS.

Linseed Syrup for Cough.—Simmer two table-spoonfuls of linseed in a pint of water until it is reduced to half; then add the same quantity of strong vinegar, or lemon juice, together with three pounds of brown sugar. Let it remain over a rather slow fire for two hours, and skim it frequently.

Composition for Cleaning Brown Leather.—Mix two drachms of muriatic acid, the same quantity of spirits of lavender, and the juice of one lemon with half a pint of skimmed milk, in which half an ounce of gum arabic has been dissolved. To use this liquid, the leather should be previously washed in soap and water, and the composition then rubbed over it with a sponge. The leather should afterwards be polished with flannel.

To Render Boots and Shoes Waterproof.—A good composition for winter use, when it is desired to make boots proof against snow and wet, is composed of one part mutton suet and twice that quantity of beeswax, melted together. It should be applied to the leather at night, and the boots wiped with a flannel next morning. Although when the composition is first applied the leather will not polish as well as usual when blacked, yet they will be susceptible of a brilliant polish after the blacking has been applied a few times. The following composition not only renders the leather capable of resisting wet, but also makes it more pliable, softer, and more durable. Dissolve half an ounce of Burgundy pitch in half a pint of drying oil mixed with half an ounce of turpentine. To use this fluid the boots should be made slightly warm before the fire, and then painted over with the composition by means of a soft brush. Then allow them to dry, and paint them over again with the liquid. The boots should then be placed in a warm and dry place until perfectly dry. Another composition of a similar kind is made by dissolving an ounce of powdered resin in a quarter of a pint of linseed-oil made hot over the fire in a pipkin. Then add two ounces of mutton suet, from the kidney, chopped up small, and simmer until the materials are well mixed. This composition is applied like the last, but does not require a second application.

To Remove the Taste of Turnips from Milk.—When cows are fed on turnips, their milk is apt to taste of that vegetable. This may be prevented by putting a small quantity of saltpetre into the pail into which the cow is milked.

MODE AND EXPENSE OF ENTERING THE PROFESSIONS.—III.

MEDICINE (*continued from p. 128*).

As soon as the student has registered at the office of the General Council of Medical Education and Registration, at 32, Soho Square, London, or if he lives at a distance, with one of the branch registrars of the district where he resides, it will be necessary for him to consider in what manner he will commence his medical education, whether as a pupil of a surgeon, or by attendance at a hospital and medical college. And he must also decide which medical examinations he intends to pass, whether those of the Royal College of Surgeons of England, the Society of Apothecaries, or the University of London; that is, unless he intends to pass all the three, which would be the wisest course for every student to adopt who is not afraid of hard work, and who wishes to rise in the profession. As soon as he has decided, he should apply at once to the secretaries or registrars of each of the Medical Boards whose examinations he intends to pass, to become registered, and be furnished with the schedules on which the lectures and hospital practice he has to attend are to be entered.

With the view to give the student as much information on the subject as possible, and thus aid him the more readily to decide what medical examinations he ought to pass, we will now consider the regulations of the various examining boards, relative to the examination of candidates for their diplomas. We will begin with those of the Royal College of Surgeons of England for the diploma of member.

All candidates are required to have been engaged for four years after passing the preliminary examination in the acquirement of professional knowledge. They must produce certificates of having attended lectures on anatomy and performed dissections during two winter sessions; of having attended lectures on general anatomy and physiology during another winter or summer session; of having attended a practical course of general anatomy and physiology; of having attended lectures on surgery during one winter session, and also a six months' course of practical surgery. They must also have attended lectures on chemistry, materia medica, medicine, forensic medicine, midwifery, with practical instruction, and pathological anatomy. They must have studied practical pharmacy, and practical chemistry in its relations to medicine. They must produce proofs of instruction and proficiency in vaccination, and also have attended at a recognised hospital or hospitals the practice of surgery during three winter or two summer sessions; of having been engaged in the examination of patients at a recognised hospital; also of having attended clinical lectures for two winter and two summer sessions, and of having been a dresser for six months, or of having taken charge of patients, under the superintendence of a surgeon, for not less than six months, at a recognised hospital, dispensary, or parochial or union infirmary; of having attended *post-mortem* demonstrations during the entire period of attending the surgical hospital practice; and they must also furnish proof of having attended, at a recognised hospital, practice of medicine and lectures on clinical medicine for two winter and two summer sessions.

At the expiration of two years from the commencement of their studies, students are admitted to the first examination for diploma of Member of the College of Surgeons. This examination is confined to anatomy and physiology, and is conducted partly by written answers, and partly by demonstrations on the dead subject. On the termination of his fourth year of study, the student is admitted to examination for the pass examination on surgery and medicine for the diploma, but before doing so he must prove that he is at least twenty-one years of age. With reference to the fees payable to the college for the diploma of member, they are five guineas for the primary, and £16 5s. for the pass examination. If, however, the student should be so unfortunate as to be rejected more than twice at either examination, it will cost him an extra five guineas. If he happens to be rejected at the primary examination, he cannot present himself for re-examination until three months; and if at the pass examination, he will be compelled to attend the surgical practice of a hospital and clinical lectures six months longer than he would otherwise have to do.

The College of Surgeons also grants the diploma of Licentiate of Midwifery, in addition to the surgical diploma, the fee for which is two guineas to members of the college and to those who have taken similar degrees, but ten guineas to all other persons.

We will now consider the regulations of the Society of Apothecaries, London. They require, in addition to attendance at lectures and hospital practice, that the student shall have been an articled pupil for five years to a licentiate of the society, but this period may include the time required for lectures and hospital practice.

The students who desire to obtain this diploma must attend the following lectures and hospital practice:—The

first year they must attend lectures on chemistry, anatomy, and physiology, with dissections during the winter session; and on botany, materia medica, therapeutics, and practical chemistry during the summer. In the second year they must attend anatomy and physiology (including dissections and demonstrations), the principles and practice of medicine, and clinical medical practice, in the winter sessions; and midwifery and diseases of women and children, vaccination, forensic medicine, toxicology, and clinical medical practice in the summer. For the third year the studies marked out are:—Principles and practice of medicine, clinical medical lectures, morbid anatomy, and clinical medical practice. They must also, at some period of their hospital attendance, have served the office of clinical clerk at some recognised hospital. Students are required to pass two examinations to obtain this examination. The first one, which may be passed at the end of the second year, consists of anatomy and physiology, general and practical chemistry, materia medica, botany, therapeutics, the pharmacopœia, and physicians' prescriptions. When the first year of the student's pupilage has expired, and he has attended all the required lectures and hospital practice, he is examined in the pass examination for medicine, both general and practical, pathology, therapeutics, midwifery, with the diseases of women and children, forensic medicine, and toxicology.

If any candidate should be rejected at his first examination, he cannot again offer himself for examination until after the expiration of three months; but if at his second examination, not for six months. The fees payable for the two examinations amount to six guineas, exclusive of the fees paid for the preliminary examination.

The fee for attending the lectures and medical and surgical hospital practice required by the Royal College of Surgeons and the Society of Apothecaries varies at different hospitals. At St. Bartholomew's Hospital it amounts to £99 15s.; Guy's Hospital, £90; Middlesex Hospital, the same sum; King's College, £100; London Hospital, £81 4s.; St. Mary's Hospital, £84; Westminster Hospital, £70; St. Thomas's Hospital, £90; Charing Cross Hospital, £82 19s.; St. George's Hospital, £94 10s. The fees, however, at the hospitals and medical colleges in the country are considerably lower. Thus, at Queen's College, Birmingham, the fees are £52 10s., or, without hospital practice, £31 10s.; at the Newcastle College of Medicine, £46 4s. for the lectures alone, or £64 1s. for lectures and hospital practice; the fees charged for lectures alone at Bristol are £52 10s.; at Hull, £42 (exclusive of chemistry); at Sheffield, £40; while the fees charged when hospital practice is included with the lectures, are at Bristol, £92 10s.; Hull, £64 1s.; Leeds, £42; Liverpool, £42 (exclusive of chemistry, which are five guineas for the chemical lectures, and three guineas extra for practical chemistry); Manchester, £42; and Sheffield, £76 15s.

The fees stated are those charged where the lectures and hospital practice are paid for in one payment, on entering the hospital, or in half-yearly payments, in about the first year and a half. If more convenient, however, to the student, each course of lectures, and also the medical and surgical practice, may be paid for separately; but this is not to be recommended, as it will generally be found more expensive. Indeed, at those hospitals where it can be done for a moderate additional payment, perhaps the cheapest course in the end for the medical student to adopt will be to enter *unlimited* to the lectures and hospital practice. This is especially to be recommended where the student desires to pass the examinations for Bachelor or Doctor of Medicine at the London or other University. It is also advisable in cases where the party is likely, from his want of application, to be rejected at the pass examination for a diploma, and therefore compelled

to continue his medical studies for an additional six months before he is allowed to be re-examined.

The reader must not, however, imagine the sums mentioned include the whole of the expenses which he will have to incur. Thus there are fees for the medical tutors, dissections, reading-room and library, &c. &c., which differ in amount at the various hospitals, and which, together with the cost of books, instruments, fee to the gentleman to whom he becomes pupil—that is, if the student wishes to pass the Society of Apothecaries—and his board, clothes, and lodging, during the time he is studying at the medical colleges, will raise the amount required to be spent by the student before he can enter the medical profession to a considerable sum—probably from £300 to £500. Even after he has entered it, and obtained all his diplomas, and become registered under the Medical Act, he will find that it will be years—owing to the dislike the public entertain to consult a young doctor, together with the immense amount of gratuitous medical assistance given away by the profession—before he can gain the same income that he could obtain in almost any other learned profession, and that, too, with a very small chance of ever gaining a prize equal to those which in other professions fall occasionally into the hands of the successful.

We will conclude this article with the form which the student has to fill up and send to the branch registrar when he wishes to become registered as a student of medicine.

FORM OF APPLICATION FOR REGISTRATION AS A MEDICAL STUDENT.

I hereby apply to be Registered as a Student in Medicine in conformity with the Regulations of the General Council of Medical Education and Registration of the United Kingdom, for which purpose I submit the following particulars:—

Name of Applicant. (To be written in words at length.)		Preliminary Examination.	Date of Preliminary Examination.	Place of Medical Study.
Surname.	Christian Name.			

To the Registrar of the Branch Council for..... *Applicant's Signature*.....
 Address.....
 Date of Application.....

N.B.—The above Form of Application, duly and legibly filled up, must be forwarded to the Registrar, post free, and be accompanied by a Certificate of the Applicant's having passed a Preliminary Examination as required by the General Medical Council; and a statement of his place of Medical Study.

AMANDINE, FOR CLEANSING AND SOFTENING THE SKIN.—Take two ounces of white soap prepared with potash and lard, and rub it in a mortar with twice that quantity of honey, or, if that is not at hand, six ounces of syrup. Continue to rub the materials together until a uniform cream is produced. Now take three pounds and a half of the best almonds oil, and mix with it a quarter of an ounce of the essential oils of bergamot, cloves, and bitter almonds from which the hydrocyanic acid has been removed. Also add to it a drachm and a half of the balsam of Peru, previously rubbed up with a little oil, allowed to remain at rest for a few days, and then the clear portion decanted off and mixed with the oil. Gradually add the almond oil thus scented to the composition in the mortar, and rub them well together, from one to three drachms of liquor potassæ being added, until they are converted into a transparent jelly, and preserve the composition in well-stoppered wide-mouthed bottles.

THE HORSE.—XVI.

RIDING AND DRIVING (*continued from p. 102*).

ROAD riding is not nearly so much practised in the present day as it was a few years ago, even within our recollection. Nevertheless, for the sake of health or exercise, many still choose to ride rather than drive or go by train, and there can be no question that it is by far the most pleasant mode of getting about the country. In many localities, long distances may be saved by taking the bridle roads, and such lovely views of the country obtained as never could be seen by following the turn-pikes through the valleys instead of crossing the hills. We are aware that thus riding on the road in these days is out of favour, and that is the reason we advocate it as a means of health and recreation, at the same time feeling sure it would be the means of opening up many of the beauties of our country that are at present known only to the natives and such strangers as sport may lead into their neighbourhood. We shall be told, in answer, that more people at the present day visit scenes of interest and beauty than ever. And it is true, but only as regards show places, while there is many a charming spot in rural England that is far less known than the valleys of Switzerland, and by these the bridle roads and lanes will often take us.

Having said thus much in favour of the horse as a means of locomotion from place to place, let us now turn to the best means of making use of him. We will suppose him saddled and bridled, in good condition, and ready for a start. Before mounting him, of course, you will see that everything is in its proper place, and put on as it ought to be, as well as that both the horse and tackle are properly cleaned. We will not advocate being so particular as a certain noble lord, who, on having a horse brought out, always drew a clean white silk handkerchief over him, and if there was the slightest stain left on it sent him back again; but on no account would we allow any remissness of the groom in this particular to pass unnoticed. When mounted make your horse stand a few moments before moving, or he will get into the habit of moving immediately you attempt to mount; and if he is a tall horse and you happen to be short, with no one to hold him, it is apt to become rather an awkward affair if he will not stand. When you move let him walk away quietly for half a mile or so; he will then feel his legs, and be fitter for going at a quick pace. Brought out of the stable and hurried off at once, before he has felt his legs, it is quite likely he may come down; and many pairs of broken knees may be traced to this cause alone. Before starting him to a quicker pace, feel his mouth and, as you may say, gather him together with the bridle, so as to start him from his hind legs; and, where practicable, select the soft sides of the roads, unless in hard, dry weather, when, from being uneven, they are not so safe as the road itself, and far more likely to cause lameness. "Nimrod" was of opinion that it was not so much hard ground as hard uneven ground, where the foot could not be placed level, that caused wear and tear to the legs and feet, and said that the legs of his own hack always filled and became hot after being used quickly on such ground, a fact that he did not notice when using him on the smooth road. To this opinion we are inclined to pay great respect, as there is no doubt "Nimrod" was one of the most practical and acute observers in all matters relating to the horse who has ever written on the subject.

In riding a long journey, do not keep your horse to one pace for too great a length of time, but change him from the trot to the walk at least every three or four miles, selecting as much as possible the ascent and descent of hills for this purpose, where, unless walking inconveniences you,

to dismount and lead him will relieve both. Some horses have a bad habit of hanging back the moment you try to lead them. When this is the case it is no use to go on in front and pull the bridle, but by taking the rein over their head and dropping back to the side of the saddle, you may, by giving a sharp tap of the whip on the quarters, generally make them walk along without any trouble, and in a short time your merely placing yourself by their side will be sufficient. In doing this, however, it is best to be careful, and keep such a hold of their head that they cannot jump forward and kick, or you may have cause to repent your want of caution. Some horses would contrive to reach you even without jumping on, by throwing their leg forward and sideways, and we have had one even kick the stirrup-iron as we were sitting on him. If they show an inclination to be cadish, and do this sort of thing, you had better keep on their backs. On reaching fit ground, a down or open field at the roadside, indulge in a canter, the change of pace will ease the horse as well as yourself, but remember it is the worst pace for a continuance that a horse can go. The trot is the thing for road work, and from eight to ten miles an hour is as fast as you ought to ride.

If you have a twenty mile journey before you, a horse in good condition should do it easily, without any halt, but on a very sultry day if you can wash his mouth out with a little water (warm, if possible), it will wonderfully refresh and help him on. In a longer journey some gruel is the best thing to give, and putting in for half an hour to have him rubbed down will be necessary after he has taken his gruel, giving him a little hay to pick over at the same time. Many horses will eat this when they will not touch corn, and we are not great advocates for feeding with the latter when on a journey. There are some hard horses that will feed at all times and seasons; to such, of course, it is best to give corn, but unless you know they will eat it there is little use in so doing, and nothing is more annoying than to pay a shilling and then see the oats left untouched in the manger when about to start. If the horse is very tired, some good strong ale put into the gruel is a capital thing, and it will send him on again as fresh as ever. About a pint is the quantity we have generally given. A friend of ours once gave his mare a quart, but the effect was not encouraging, as she staggered and rolled about terribly before reaching home. Towards the end of a journey it is a good plan, unless your horse is a very free one, to ride him rather more sharply on the curb, and just feel his sides with the spur. It may save him broken knees, and you a roll in the mud. The same thing is to be observed where circumstances compel you to trot down hill—always a bad plan, as it jars the fore legs and feet, but one which, nevertheless, cannot always be avoided. By the use of the curb and spur, not held hard, but just touched lightly, you force your horse more on his hind legs, consequently diminishing the jar on the fore ones, and making a tumble far less probable than when either leaning into the bridle or going with his head quite loose. A horse in good condition and well ridden should carry you fifty miles a day easily on the road for one day; but, if you wish to keep on with him, from twenty to twenty-five is sufficient, indeed, as much as he ought to do. When you arrive at the end of your journey see him attended to yourself, and be sure that the saddle has not wrung him anywhere; if it has, get the stuffing altered at once. It is as well also to look to his shoes, and see that none of the clinches have got up so as to cut him. If he feeds well and dries off nicely, you may make yourself comfortable for the day, and feel assured that he will come out ready and able to carry you forward on the morrow.

Whether it is advisable to undertake a journey, say of fifty miles, with only a short halt, as before recommended, must depend in a great measure on the time of

year, and the weather. In summer we should certainly do it in the morning and evening, giving the horse four or five hours' rest during the heat of the day, when, of course, he may have his usual corn; but in the winter we should ride him right through, with only a little hay and gruel, perhaps just washing his mouth out with water once or twice in addition.

STATIONERY.

II.

THE only remaining important division in wrapping papers is that known as "grocery papers," which are specially made of a variety of sizes and qualities suited to the requirements of the grocery trade; but particulars of these would be of little interest or importance to the general public.

Although we are accustomed to look upon paper as a somewhat modern invention, paper-making is really an exceedingly ancient art. Paper was made in Egypt at a highly remote period from the papyrus, and in China from the bark of trees. These primitive papers were early succeeded in the East by others made from cotton; and paper-making from that material was introduced into Europe in the twelfth century by the Spanish Arabs. From them the art was disseminated among the European nations, and greatly improved; hemp and linen rags being in the fourteenth century substituted for cotton. Of the papers made soon after that period, many of them still remain as sound and good as ever, and far superior to those of modern make; they are sized with gelatine, and their super-excellence in great measure arises from the fact that no chemical agents were then employed for bleaching—the fibre was allowed to remain of its natural colour, and the vegetable gums were not, as now, destroyed. Although the first English paper-mill was worked in the fifteenth century, the papers of this country were not for a long time very successful, and all the best qualities were imported from the Continent; but in 1770 Whatman opened a manufactory at Maidstone, and introduced great improvements, and the drawing-papers which still bear his name have been and still are superior to anything of the kind produced in Europe. About this time, also, an Englishman, Baskerville, invented "wove" moulds, to obviate the roughness of "laid" paper, and these being still further improved in France, led to the beautiful vellum paper of that time. Paper-making machinery was in the same century greatly improved by the Dutch, by the invention of cylinders with steel blades to tear the rags, instead of the old method of pulping them by stampers. The system of producing paper in an endless web was a French invention of the close of last century; and since that time the machinery employed has constantly been undergoing modifications and improvements, which, together with the recent removal of the excise duties upon this article, have led to the extraordinary abundance and cheapness with which paper is now produced.

The staple material for the manufacture of paper has for many centuries been the rags and remains of vegetable fabrics; that is, those made from flax, cotton, or hemp; but it would seem that ever since this article has become a necessity of civilised life and been in universal demand, apprehensions have at intervals been felt that the supply of rags would prove insufficient. As long ago as 1772 this outcry was raised, and efforts were made to discover new available materials. During that year a work was published by M. Schaffers, of Ratisbon, which had in it sixty samples of paper made from various substances, amongst others, from sundry tree barks, from catkins, from vine-tendrils, from fir-cones, from moss, from potatoes, from shavings, and from sawdust; and most of

us remember an alarm of the same kind within our own time. Although rags are not superseded, many kinds of vegetable fibre are now used as auxiliaries to them. Much paper, both for writing and other purposes, is now made from straw, but this, though cheaper, can in no way equal rag paper in quality. Another substance recently introduced for the manufacture of writing paper is the "esparto" grass, which much resembles a rush in its appearance and mode of growth, but which, instead of being circular in section, has a deep groove running up one side. The esparto grows abundantly in Spain, where it is very much used for making mats and similar purposes; since the discovery of its value to the paper-maker, its price in that country has been more than trebled. Large quantities of wood are also now reduced to pulp, and formed into papers of various kinds. This material makes a writing paper more pleasant to write upon than straw or esparto, and equalling them in cheapness; willow poles are usually employed, and first crushed under heavy rollers. At the present day, however, we may consider ourselves safe from any danger of failure in paper-making materials, for owing to the discovery of chlorine as a bleaching agent, coloured rags and substances can readily be reduced to perfect white, and old manuscripts and discoloured paper cleansed and turned into pulp again and again.

Envelopes were first brought into use in 1840, owing to postage being then charged by weight, instead of, as before, by the number of sheets. They were at first made wholly by hand, being roughly cut out with a chisel, and afterwards folded separately with a paper-knife. This slow and primitive process was superseded in 1845, when Hill and De la Rue introduced machines. They are now cut out and folded by machinery with surprising rapidity, and are far neater and better finished than were the old hand-made envelopes. They are made in all the descriptions of writing paper, and in many qualities and varieties; the paper from which they are cut is especially made for the purpose in larger sheets than ordinary. The cement by which envelopes are fastened together, and at the present day generally closed, in place of using sealing-wax, as well as that by which postage-stamps are made to adhere to them, is made from wheat starch, with a slight admixture of barley-malt and the mucilage of linseed. Had not the art of making this gum, which was the result of an accident, been discovered, the free employment of stamps and cheap envelopes would have been impossible, for gum arabic would have been too costly to use in such enormous quantities. Starch-gum is made by keeping starch mixed with four times its weight of water for some time, at a temperature of 140°, and suddenly raising it to 167°. This converts the starch into gum, and fermentation is then checked by the addition of a little alum; it makes a cheap, and, as we all know, exceedingly powerful cement for paper.

Ink.—Of all descriptions of stationery, ink is probably the one of which the manufacture at the present time is in the least satisfactory condition. Very few of the inks in common use are properly to be called permanent, and in a few years the manuscripts written with them will lose their blackness, become faint, and probably illegible. Perhaps really the best safeguard against this evil would be, where permanency is required, to use Indian ink. This, though never a very deep black, would undergo no change in the course of time, owing to its basis being carbon, which is, in its nature, indestructible. Faded writing may, however, be partially restored by carefully applying to it an infusion of galls. Common ink is the pertannate of iron, in which is mixed a little gallate, held in suspension in water by means of gum, which prevents its being too fluid, and hinders decomposition of vegetable matter. The following has been recommended as forming a good permanent ink:—Take Aleppo galls, finely bruised,

six ounces; crystallised sulphate of iron, four ounces; gum arabic, four ounces; water, six pints. Boil the gall in the water for about two hours, supplying the loss from evaporation. Then add the other ingredients, and keep the whole for two months in a glass bottle, which shake occasionally. Add a few drops of creosote to prevent mould. Strain off, and bottle for use. A red ink may be made by boiling two ounces of Brazil-wood in a pint of water for fifteen minutes, and adding a little gum or alum; but for red and all other kinds of fancy inks, nothing can be better or cheaper than a little of Judson's dyes, diluted with gum-water, which will give the most vivid and brilliant hues in all colours.

Gum for the writing-table, which will combine great strength with the desirable quality of keeping for any length of time, may be prepared by dissolving equal parts of gum arabic and gum tragacanth in vinegar; and ordinary gum arabic water will be found to keep much better if a little vinegar be added to it.

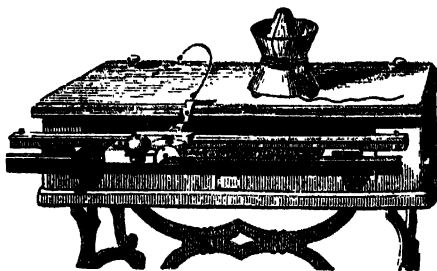
MACHINERY AND CONTRIVANCES FOR DOMESTIC USE.—I.

THE KNITTING-MACHINE.

A KNITTING-MACHINE is a natural sequence to the sewing-machine, and several have been submitted to the public. We give an illustration of the latest and apparently most complete contrivance of this character, known as the Crane Knitter, an American invention, which promises to become as popular in this country as in the States. The illustration represents the knitter in its unfolded and working condition. When not required for use, it can be compactly disposed of in the space formed by the leaf or framework of the table or stand. Facing the operator, and in the position occupied by the key-board of a piano-forte, is a massive metal plate, in which deep square grooves for the reception of one hundred and six needles are cut. This, for the sake of simplicity, we will call the key-board. On the surface of this, and fitting accurately to it, is a sort of metal carriage or traveller, which can be moved forward or back on the key-board with the greatest facility, by the aid of a short, ball-crowned handle. Within the body of this traversing carriage is a contrivance known as an oscillating cam, which is formed by the ingenious adaptation of two sloped angles of metal. These, as they travel forward and back, act on the projecting and protruding studs of the needles, which are raised above the level of the key-board, and travel forward or back each in its own particular groove or channel, where it is defended from all chance of injury. The needles moving from behind forwards, and from before backwards, have a perfectly direct line to follow, as they dart with inconceivable rapidity when acted on by the cam of the travelling carriage. Each needle is furnished with a latched point, which, acting like a self-closing mechanical claw, securely grips such thread or yarn as may be placed within its grasp. Then, in order to keep down the claw-latches, and so prevent the escape of the loops, a most curiously and ingeniously devised presser or latch-closer is caused to follow the line of needle-points as they pass beyond the inner edge of the grooved key-board, and enter a line of plates prepared for their reception; and it is in the space between the key-board and this set of plate-stalls that the stitches of the work are executed. Hanging beneath this border line is a thin, toothed metal plate, eighteen inches in length, in the centre of which a hole is made for the

attachment of a weight, proportionate to the nature of the work in the course of execution.

The yarn, thread, or fibre to be used is, by the aid of a sort of crochet hook, passed up and down from the teeth of the suspended working-plate to the opened claws of the travelling needles until the number and arrangement of stitches have been completed. A little iron plate with a notched end is now used to force up the studs of the armed needles to the working position, and to thrust those unarmed out of the way. In order to ensure a direct and uninterrupted supply of yarn, a most curiously-devised tin yarn-box or spool-canister is used. One of these is shown as resting on the table top. The yarn, after being wound round its hourglass-like centre, is carried down through an orifice in the apex of its central cone. The lower rim, being slightly tilted up or raised by the introduction of a small ring of tin plate, allows the thread to pass freely out. It then, after being directed through a small loop or ring at the head of the wire lever shown as projecting above the key-board, passes on to the feed of the machine. This wire lever resembles a well-made trout or salmon rod. Furnished with a spiral spring, and being itself extremely flexible, the slightest inequality of strain or sudden tension is at once yielded to, and the thread, instead of being broken, is, whilst relieved from undue strain, guarded from breakage. The work in progress is, in fact, by this quaint little rod, played like a



CRANE KNITTER.

a fish until fairly finished and landed; and it matters but little what substance or strength of line, thread, or yarn, is made use of. To execute the work when once commenced, it is only necessary to force the sliding or travelling carriage forward and back in the line of the key-board. If stitches are to be dropped, they are simply cast from the claws with the crochet hook; if taken up for ribbing, or giving an increase of scope, more teeth of the work-

plate are looped to the claws with the hook. The length of the required stitch is regulated by turning a small nut which is attached to the centre of the carriage. A dial-formed register or indicator is also attached to the surface of the slide; this arrangement, by keeping an accurate account of the number of stitches executed, prevents all confusion when pairs of socks, stockings, mittens, &c., are in the course of manufacture. A full-sized pair of woollen socks has been made by its aid in twenty-five minutes.

OLIVE OIL.

OLIVE OIL, or, as it is usually called in the household, salad oil, is extracted by pressure from the fruit of the *Olea Europaea*. This tree is a native of Asia (where it is named *zituna*) and the northern parts of Africa. It is also grown in France, Italy, and Spain, and requires a calcareous, rocky soil for its cultivation. The fruit of the olive, from which the oil is obtained, is smooth and oval, like a plum, and when ripe, its skin is of a deep violet tint. Inside, the fruit is soft and fleshy, and of a whitish colour, containing a hard, long, pointed nut, and is of a bitter, disagreeable taste.

The olive tree commences to yield olives in its second year, and continues to improve until it is a century old, after which it deteriorates. The fruit is gathered in November; and great care should be taken that it is sufficiently ripe, otherwise the oil it yields will be bitter; but if the olives should be allowed to be too ripe, the oil will be thick, and containing much mucilage. The very

best olive oil will be found to have a fruity taste; this is due, not so much to the method by which the oil is obtained as to the quality of the olives used.

To obtain the oil, the fruit is usually collected in heaps and allowed to ferment, during which process they rise considerably in temperature. Great care has to be taken, while the olives are fermenting, that the temperature does not reach as high as 100° Fahrenheit, otherwise the fruit will yield an inferior oil, which will have a rancid taste. The use of thus causing the fruit to ferment is to render the olives softer, and enable them to yield their oil the more easily. When the olives have remained in heaps for the proper period, they are crushed into a paste beneath heavy rollers (which are placed so far apart as not to crush the kernels) and then placed in bags or sacks made of rushes. Eighteen or twenty of these bags are then piled up in a powerful press, and compressed as tightly as possible. The oil thus obtained is of the best quality, and is known as virgin oil. When the oil ceases to flow, the olives are removed from the sacks, broken up in hot water, and again compressed, to extract a further quantity of oil, but which is now of an inferior quality, and which issues from the press mixed with water. The oil is now separated from the water by collecting it in cisterns, and allowing the water which is mixed with the mucilage of the olives to collect at the bottom of the vessel, while the oil floats on the surface, from which it is removed by skimming it off. The olive oil thus obtained is known in commerce as oil of the second quality.

Even after this has been done, the kernels of the olives contain a considerable quantity of oil. For the purpose of extracting this oil, the olives are removed from the sacks and mixed up with water, by which means the broken stones fall to the bottom of the vessel, and allow the kernels to float to the top. They are then collected by means of a sieve, dried at a gentle heat, rolled into a paste, put into bags, and again compressed, when they yield oil of the third quality.

When olive oil is first expressed, it is always found to contain a considerable quantity of mucus. This is got rid of by allowing the oil to remain at rest for three weeks, at a temperature of about 68° Fahrenheit, when the oil deposits the mucus at the bottom of the vessel, in the form of a white albuminous substance of a fibrous consistence.

The best olive oil is imported into England in flasks, and is then known as salad oil, from being employed in the preparation of that dish. It is packed up in boxes, called half-chests. Sometimes—and this is especially the case with oil of an inferior quality—it is sent over in jars.

Most of the olive oil imported into England is sent from the port of Gallipoli, where it is stored in huge cisterns cut out of the solid rock. It is found that the quality of the oil is much improved by this treatment, and that when thus stored it has kept good for more than seven years. The best olive oil is said to be made in Provence, and its great excellence is supposed to be due to the care taken in cleaning the olives previous to using them. A considerable quantity of the oil imported into England, however, comes from Lucca and Florence. Olive oil is also sent over from Sicily, but is of an inferior quality, and has a resinous taste, which has been attributed to the nature of the soil on which the olives were grown.

The oil is a compound of two principles, named oleine and margarine. Oleine is a thin and oily liquid, of which seventy-two parts are contained in each hundred of oil. Margarine is a solid substance, which, although soluble in oleine at the ordinary temperature of the atmosphere, is deposited when the oil is exposed to cold. This principle constitutes twenty-eight per cent. of olive oil.

When olive oil is kept for a long period—and especially if exposed to the action of the atmosphere at a warm temperature—it becomes partially decomposed, sebæic

acid is formed, and the oil acquires a disagreeable taste and odour, and becomes what is commonly known as rancid. And, at the same time, the oil deposits stearine, becomes thick, and of a dark brown colour. This is especially the case if it has been adulterated with poppy oil.

Olive oil, when of good quality and free from adulteration, should have scarcely any smell, and have a bland and pleasant taste. Owing, however, to its value, olive oil is much adulterated with poppy oil, cocoa-nut oil, and rape oil. The oil procured by expression from the seeds of the *Sesamum orientale*, and which is commonly known as teal, sesame, or gingelly oil, is also employed for its adulteration.

The most ready way of detecting these adulterations, and also of ascertaining the nature of the oils employed, is to place a small quantity—from ten to twenty drops—on the middle of a slip of colourless glass, and drop on the centre of it a very small drop of sulphuric acid. If the olive oil is perfectly pure, it will assume a pale yellow appearance, which gradually changes to a yellowish green. If the olive oil has been adulterated with poppy oil, it becomes of a deeper yellow, which at length becomes almost opaque. When rape oil has been used, a ring of greenish blue forms round the acid, with some light yellow-brown streaks in the centre. If whale oil (train oil) has been employed, the addition of the acid produces a movement in the centre, gradually extending over it, and at length assuming a red tint, with violet at the edges. Or if lard, or tallow oil, has been added, the liquid becomes of a brown appearance, which, if linseed oil had been used, would be almost black.

Another way to detect whether olive oil has been adulterated with other oils, is to mix it with a solution of the nitrate of mercury. This solution is prepared by adding eleven parts of mercury to eight parts of nitric acid in a small flask or test tube. A gentle heat should then be applied until the metal is dissolved, and then fourteen parts of water are to be added. To use this solution, a small stoppered phial must be half filled with the suspected oil; then half that quantity of the solution of nitrate of mercury is to be added, the stopper placed in the mouth of the phial, and the whole well shaken together for five minutes. The vessel is then to be allowed to remain at rest for a short time, again well shaken, and afterwards placed on one side for some hours. At the end of that time, if the oil is perfectly pure, it will be found converted into a solid mass; but if it contains one part in twenty of other oils, it will remain fluid. The solid mass thus produced by the action of the nitrate of mercury is due to the production of a solid fat named elaidine.

THE SICK-ROOM AND NURSE.

V.

IN moving the patient from one side of the bed to another, it is better to loosen the under sheet from the sides and bottom, and to drag the sheet, instead of attempting to raise the sufferer. Small iron ^{bedsteads} are preferable in sickness to the old-fashioned four-poster, or French bedstead. Less fatigue is entailed by their use to the nurse, and a greater amount of fresh air is secured around the body of the sick person. A large quantity of bed covering only contains so much more vitiated atmosphere, without supplying any adequate benefit.

Sometimes a sufferer is much assisted in his attempts to raise himself by having a pulley placed to the bed-post or foot of the bed. A strong jack-towel is the best for this purpose, and admits of being easily looped. Any similar length of cloth, or even glazed calico, may be used instead. Whatever is used should be knotted here and there to help the patient in retaining hold.

Bed-sores are troublesome abrasions which are liable to occur from long pressure on one spot. They are also sometimes caused by neglect of cleanliness on the part of the nurse. Some effort should be made to sponge the patient in places where such pressure exists for any length of time. A mixture of one-third of brandy or spirits of wine to two-thirds of water, applied on several folds of old linen, and kept near the affected spot, is considered a good remedy. If a medical man be in attendance, these sores should be described to him.

The dress of a patient, when lying in bed during a long illness, should be of a light and warm texture, and of plain fashion. Loose bed-jackets, with detached skirts fastened on a broad band, are a great comfort, and may be changed without much inconvenience. A large flannel over-jacket, in the shape of a sailor's jacket, or wide Garibaldi, is the best outside garment. The collar should not be set in a band, but the neck should be drawn in by means of a runner, in order to admit of its being opened wide to pass the arms through. Either the white shirt-collar may be turned down over the flannel jacket, or a separate collar may be added at will.

Cotton counterpanes of the ordinary kind are not suitable coverings in sickness. Neither the old-fashioned knotted kind nor the marcella make are sufficiently light and porous. A closely-woven, thick counterpane, by confining the heated atmosphere of the bed around the patient, is apt to produce feverish symptoms and sleeplessness. The best outer bed covering is a thick or thin blanket or blankets, according to the season of the year, surmounted by a counterpane made of *washed* chintz, either lined or not, as may be convenient. Such a covering is easily cleansed if soiled, and, as far as the comfort of the patient is concerned, is all that need be desired. There is a good deal of ostentation to guard against in the management of a sick room, and the pride of fine clean quilts, and trimmed bed-gear and linen, is not the least objectionable folly. A sick room is no place for prying visitors or vain display. The comfort and the welfare of the sufferer should be the first consideration, before which mere conventional observances should be made to give way. When the happy time of part-restoration to health is attained, it is early enough for a nurse to be fussy in making things showy on the surface. Let the sick room, then, be as bright and well-ordered as busy hands and loving hearts can make it; but, whilst life and strength are wavering, every aid should be given to secure rest of mind and ease of body.

There is one point on which a nurse cannot be too scrupulously exact in discharging her duties—the confidences of her patients should be to her completely sacred. She cannot help having eyes and ears; but no matter of revelation, with which during, perchance, the delirium of fever she has become acquainted, should for any consideration pass her lips. She need only consult her own innate sense of right dealing in the matter, to be certain that she violates the most honourable trust by alluding to circumstances which she is certain her patient, if in sound health, would on no account have confided to her keeping. The most unaccountable depravity of speech sometimes escapes the lips of the purest-minded adults and the most innocent children, when under the influence of fever. How or where such shocking language can have been heard puzzles the mind of those whose painful duty it is to be hearers of the revolting language; something like a reproach seems at the time to attach to all those who have been concerned in the nurture and companionship of the sufferer. But, in point of fact, the moral atmosphere in which the patient has lived may have been of the utmost purity, and the utterance of foul thoughts may proceed from casual hearing in passing through public thoroughfares, where, unhappily, the most spotless mind may be exposed to receive lasting blemishes from

slight contact with the drunken and depraved. Until bad language is thoroughly purged from our streets, as it is from the dwellings of the educated classes, the striking contradiction between the habit of speech in a healthy or diseased state of the same individual will continue to baffle the understanding of many. Physiologists tell us that detached sentences, incomprehensible to the innocent hearer, may lie dormant for years, unheeded and forgotten, till, by some general disturbance of the system, the brain is excited to morbid action, and reveals the hideous impression unconsciously received. No permanent trace of this departure from the normal condition of the mind is usually apparent in the subsequent habits of the sufferer, and in very rare instances is any consciousness preserved of having given utterance to revolting or blasphemous ideas.

Delusions are another condition of mind which frequently attends a state of feverishness. It is not at all unusual for a sick person or child to maintain, against all evidence to the contrary, that certain appearances, forms, and sounds are present to their faculties. At one time the sense of smell may be affected, at another the sense of hearing, and so forth, by which the patient is led to refuse food and argue upon unfounded facts. It is of no use to oppose a sick person when in these moods. Opposition only serves to produce greater excitement than that from which the delusion arises. A wiser plan is, as far as possible, to appear to fall in with the views of the speaker, and to try and find a reason to account for the supposed objection. Although for the time being deprived of correct powers of reasoning, invalids like to be considered perfectly sane, even in their wildest moods, and are apt to resent any attempt to prove them to be in error. Whenever a delusion takes an alarming hold on the imagination of the sufferer, it is advisable to prove the unreal nature of the terrifying object. Obstinate at first may the patient refuse to be convinced, but this determination should not be suffered to deter the nurse from persevering in her plan to dispel the painful impression. If, for instance, a sick person declares that some one is in the room, or near the bed, and is annoyed at the fact, the nurse should endeavour, by some indisputable evidence, to prove to the patient that he is *dreaming*, and that what he sees is a dream. By persistently maintaining that the patient is asleep, he may generally be made to believe that he really is asleep, and will be reconciled.

Aversions towards the persons best loved when in good health are amongst the most painful scenes that are witnessed beside the sick bed of a cherished sufferer. Here, again, a great amount of self-denial must be practised, to prevent undue irritation of feeling. There is no help for it on such occasions but for the objectionable person to withdraw from the sick person's sight, and bide the time patiently till a healthy state of mind is restored. Even fond wives and mothers are sometimes reduced to the poor consolation of watching needful offices performed by the hands of hirelings and strangers, whilst they themselves dare not approach within sight. Peeping through curtains and cracks of doors, they observe what is done, and, unseen, direct the operations; but self-restraint prevents them from doing more. In these distressing cases nurses should possess heroic fortitude and utter unselfishness. With returning health fondness is restored, and all memory of the distorted affection is forgotten on the one side and ignored on the other.

It ought not to be necessary to point out the supreme importance of a nurse establishing a calm moral influence over her charge. No weak indulgence, causing the prescribed remedies to be neglected, and no conspiracy between herself and patient to deceive the doctor, should be for a moment entertained. Similar foibles only prolong suffering, and add to the evils which it is the office of a nurse to remove.

AMATEUR TURNING.

IV.

IN the eccentric cutter shown at Fig. 1, A is the reel or wheel; B the spindle, which works through two brass collars, C, C; D, the tool-box, in which the tool, E, is confined by a screw beneath; and F F is a graduated steel bed, similar in its principle to those in the parallel and circular rests, with a screw, G, by which the extent of eccentricity is regulated, and by this the cutter is made to perform its work in large or small circles, the depth of the cut being regulated by the screws, H, H. In using the eccentric cutter, the fly-wheel of the lathe must be made to revolve rapidly, but the machinery should be brought gradually and carefully to the work, or there will be danger of breaking the delicate tools with which it is furnished. A set of these consists of about two dozen, of different sizes. While working, the spindle should be liberally supplied with good oil through the holes in the collars.

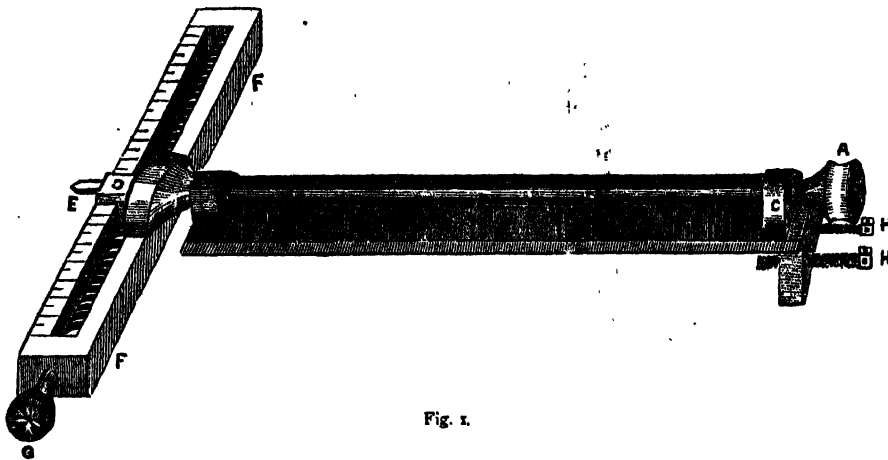


Fig. 1.

The Drill is also a useful auxiliary to the parallel rest. Its general form resembles that of the eccentric cutter, with the exception that the sliding-bed, F F (Fig. 1), is wanting, and this, instead of working in large or small circles, revolves upon its own axis. There are about four dozen small tools of different sizes and shapes belonging to it, and with these not only holes, dots, &c., but various mouldings may also be worked. Pretty honeycombed patterns may be made by it, by drilling holes at regular subdivisions of the circle shown on the brass wheel, and in the hands of a practised turner it may be made a most valuable instrument in the execution of delicate work.

The Universal Cutter (Fig. 2) is also used with the parallel rest, and can be applied to many purposes to which the drill and eccentric cutter are inapplicable, for, as its name indicates, it can be made to work in any direction. The bed of this instrument slides into the parallel rest, like those of the eccentric cutter and drill, and the tool-holder, A, may be inclined by turning the screw, B, to any desired angle, the inclination being regulated by the marking on the brass plate, C, where it is indicated by a small steel point; so that a pattern may be cut slanting to the right, and, by marking the number, and turning the cutter to the same number on the opposite side, a precisely similar pattern may be cut slanting to the left. When screwed down to the last marking on the plate, the tool will cut perpendicularly; but, in the position shown it will make one in a horizontal direction. This cutter is not, like the others, worked by a spindle passing along the bed, but by a reel, D, at the end of the tool-box. When the cutter is screwed down flat, this is turned by a band passing over the wheel

on the overhead gearing, in precisely the same manner as the drill and eccentric cutter; but when the tool-box approaches the position indicated in the cut it is necessary to make the band pass also over the back pulley, E, which may be inclined, to make it correspond with the wheel, D, by turning the screw behind it. The universal cutter has about four dozen different tools, and the depth of the cut is regulated in the usual manner by the screw, F. The tools are delicate, and must not be brought roughly against the wood, where there is danger of their sticking fast, and the cutter must be kept well oiled. The proper spacing of the patterns must, of course, be regulated with this, as with the other cutters, by the numbers on the brass wheel of the lathe.

The Eccentric Chuck.—The various instruments all of eccentric turning which we have described above are for of them highly useful in the execution of intricate patterns, but of all the appliances employed in the art none is so valuable as the eccentric chuck. It is used in combination with the parallel rest, and the work is executed by

the tools belonging to that contrivance; but as this chuck permits of the centre of the work being changed at the will of the operator, numberless patterns can be worked by its aid which would otherwise be impossible. It consists of a brass plate, in which is a slider, acting in something the same manner as that in the elliptical chuck, which screws upon the mandrel, and a brass wheel, marked off to 120 divisions, for regulating the extent of eccentricity, which is easily managed by means of a screw. Upon this the work is fixed, and by its aid a square or oblong surface can as easily be ornamented as a circular one.

It would be impossible for us in the space of these articles to give a series of patterns in eccentric turning, with the necessary directions for carrying them out, for this is a subject which works in many volumes have not exhausted. We have, however, as we believe, sufficiently explained the mechanism of the instruments and the method of using them to enable the amateur to work with them without difficulty, and he will soon see in what manner they are best employed in the formation of the simpler patterns, many of which will doubtless be suggested by his own taste, and for others we must refer him to more elaborate essays on the subject.

Staining Wood and Ivory must frequently be resorted to, and we shall, therefore, give some approved receipts for so doing. For wood, the following are good:—*Black.*—First brush the article over once or twice with a hot decoction of logwood, and afterwards with a solution of copperas, or iron dissolved in vinegar, or with common ink. *Red.*—To a quart of water put two ounces of potash and two of Brazil-wood, let them stand in a warm place

for several days, and stir them up occasionally. While boiling, brush this over the wood, and repeat the application till it becomes of the required colour; afterwards, and while the wood is still wet, brush it over with a solution of two ounces of alum to a quart of water. Double the proportion of potash to the other ingredients will give a rose red. *Purple*.—In a quart of water boil one ounce of logwood and two drachms of Brazil-wood till the water is reduced to a pint, then strain and brush it over the wood. A drachm of pearlash must then be dissolved in a pint of water, and brushed over the wood when it has become dry. *Yellow*.—To a pint of spirits of wine put one ounce of turmeric, and let the mixture stand three or four days, after which it may be brushed over the wood. An orange stain may be made by the addition of a little gum tragacanth. *Mahogany*.—In a quart of water boil half an ounce of logwood and one ounce of fustic, and brush the wood with it, which should afterwards be gone over with a weak solution of potash. The above will make a dark mahogany. Two ounces of madder used

Polishing.—All the hard woods used in turning may be made to receive a fine polish upon the lathe without difficulty. All work should be perfectly smooth when finished with the tool, and sand-paper may be afterwards used; the slight scratches left by the sand-paper can be removed by using Dutch rush, which should previously have been soaked to prevent its breaking. The polish may then be given with a few spots of olive oil on a rag, and the shavings of the wood held against it. Finally, it may be brushed with a hard brush after being removed from the lathe.

If, however, it is desired that the work should be varnished, instead of simply polished as above, it should, after being rubbed down, be wiped with a clean piece of rag, and the varnish applied on another piece, with a single spot of olive oil, that it may be slower in drying, while the lathe revolves rapidly. The proper varnish is made by the following receipt:—In a wide-necked quart bottle put spirits of wine, one pint; gum benzoin, one and a half ounces; lacquer, two ounces; turpentine, half a

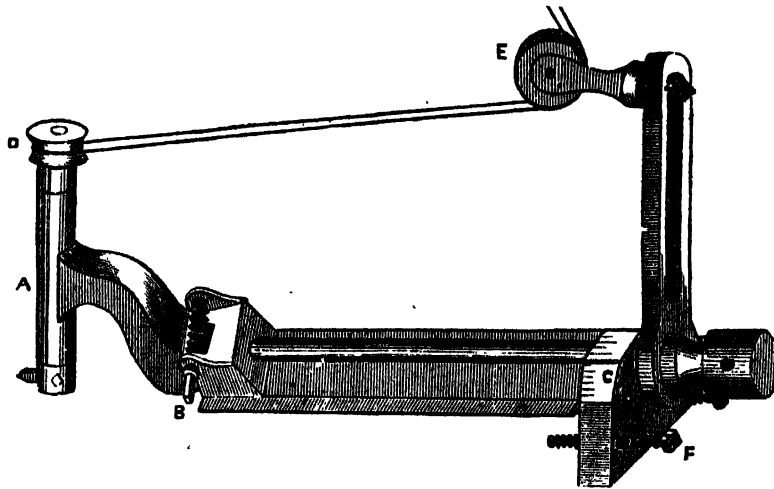


Fig. 2.

instead of the logwood will give a lighter stain to the wood. Ivory and bone, before being stained, must be thoroughly cleansed from the grease which they always contain. This may be done by dissolving a pound of saltpetre in a pint of water, and immersing the pieces of ivory or bone in the solution. Tying them to a piece of string, and merely dipping them into the liquor, will be sufficient, and they must afterwards be plunged in cold water. *Black*.—In a quart of water, boil a quarter of a pound of logwood for half an hour, and then steep the ivory in it. *Red*.—This is best done with the dye used in scarlet cloth. Half a pound of snippings of scarlet cloth should be taken and boiled in a clean earthen vessel, with an ounce of soft soap and three quarts of rain water. This should be stirred frequently, and allowed to boil half an hour; then strain and squeeze the cloth through a canvas bag into another earthen vessel, into which has been put as much powdered alum as will lie upon sixpence. In this infusion the ivory may be steeped till it becomes of the proper colour. After ivory has been removed from either of these boiling fluids there is danger of its cracking, but this may be avoided by putting it immediately in cold water.

In using the above receipts it should be remembered that the articles should be dried after each successive brushing over with the stain, and if a very deep shade is required, the wood should be boiled for some time in the liquid, instead of being merely soaked with it. Whenever dye-woods are used, it should be in the form of raspings, or small chips.

drachm; camphor, half a drachm; sandarac, quarter of a drachm; and dragon's-blood, quarter of a drachm. Tie a piece of wet parchment, pierced with pin-holes, over the mouth of the bottle, and set it in a warm place. Here it must remain till the ingredients are dissolved, being frequently shaken, and when cold it must be strained, and kept closely corked till required. This varnish should be polished when perfectly dry with powdered whiting, but it must not be rubbed too hard or for too many minutes in succession, lest its surface should be injured by friction; then wash it thoroughly with a wet sponge, and polish with a spot or two of olive oil on a piece of rag. Finally, wipe the work with a piece of clean linen. This will give a most beautiful lustre.

The following is another receipt for preparing a polishing composition for turned wood articles:—Dissolve half an ounce of bees'-wax (cut up into very thin slices) in a sufficient quantity of oil of turpentine to form a paste. Mix with it gradually a solution of half an ounce of sandarac in five ounces of rectified spirits of wine.

Ivory, when highly ornamented, should be polished with a brush dipped in chalk and water, or in most cases a sufficient polish may be obtained by using a brush with water only. In plain articles, however, where a more brilliant surface is requisite, very finely ground putty-powder should be applied, with a little water, on a piece of linen, and after being dried the work should be rubbed with a piece of felt. By attending to the above directions, a beautiful surface may be insured to the work.

SOCIETY.—II.

WEDDINGS, WEDDING-BREAKFASTS, ETC.

IT is customary for the bridal breakfast to be given at the house of the bride's parents, and the cost is defrayed by them. If the house is not large enough for the purpose, or any other objections exist, it is not unusual for the breakfast to be given at some hotel that has a connection for similar entertainments, and where as much seclusion is enjoyed as attends meetings of the kind in private life. Some of these establishments, indeed, have lately become quite favourite places of resort for bridal parties, and at many of them the appointments usual in a well-conducted establishment are scrupulously observed and carried out. The order for such entertainments should be given some time previously, and the number of guests specified. The rate at which the contract will be taken should be expressly understood. Having made all necessary arrangements, the host and hostess should refrain from alterations, either in the number of the party or the description of wines, viands, &c. It is in these needless changes that disputable charges are liable to be made, converting what otherwise might have been an occasion of unalloyed pleasure into a source of unpleasant reminiscence.

Having decided on placing the management of the breakfast in the hands of competent professional purveyors, the host and hostess need have no personal trouble in the matter. All that is usual to be done on such occasions will be done, and the latest rules observed in the various details subject to the dictates of fashion.

Concerning wedding-breakfasts in private houses, some practical suggestions may not be unnecessary.

Immediately on leaving the vestry, the bride and bridegroom repair to the residence of the bride's parents, or wherever the breakfast may be appointed to take place. In the drawing-room are usually displayed the presents the young couple have received. This fashion is of questionable taste; but, being in vogue, the practice cannot be dismissed without a word of comment. Some people carry the display to the extent of announcing the names of the donors of the respective gifts by having written cards affixed; or by placing the ordinary visiting-card of the donor, or the letter that may have accompanied the present by the side of the offering. Some little time is usually passed by the guests in inspecting the presents and bestowing their congratulations on the bride and bridegroom. If, however, any period of time longer than half an hour should be required to elapse before descending to breakfast, biscuits, tea, coffee, and (if in the summer) ices should be handed round to the company.

The precise time at which breakfast is to take place, as also the hour for solemnising the marriage, and the name of the church, should be written on the card of invitation. The following is the usual form of invitation:—

"Mr. and Mrs. _____ request the pleasure of _____'s company at breakfast on ———, at ——— o'clock.
"St. _____'s Church, at ——— o'clock."

The blanks should of course be filled in with the names, dates, &c. The address of the intended host and hostess should be written on the top of the paper.

People who wish only to go to the breakfast may please themselves without any offence being taken—religious faith and practice being beyond the control of ceremonious social observances. Many members of Protestant denominations object to entering a Roman Catholic church (and *vice versa*), but would be glad, nevertheless, to offer their congratulations in person at a breakfast; to such the course is quite open.

The hour at which the breakfast takes place is generally regulated by the departure of the bride and bridegroom for the wedding-tour. It is the custom for the

bride to leave the table to exchange her bridal costume for a travelling suit, and not to return to her friends' company. The earlier the departure the better, it is considered, according to present etiquette.

The order of arranging a wedding-breakfast is as follows:—Everything must be bright, clean, and in good taste. As many flowers as can be conveniently used—not to the detriment of the guests' comfort at table—should be introduced. Flowers may abound everywhere. Tea and coffee should be served from a side-table, and, if required, should be handed to the guests in teacups, leaving milk and sugar to be added to taste. On the table everything intended to constitute the repast should be spread *at once*. No changes occur at wedding-breakfasts. The only additions not on the table are ice pudding, which should be handed round towards the end of the meal. The favourite viands for wedding-breakfasts are such as are in vogue at first-rate ball-suppers; viz., cold joints, poultry, game, lobster salads, ham, tongues, savoury patties, jellies, creams, fruit, &c. &c.

The wedding-cake is an important feature at a wedding-breakfast, and should be placed opposite the bride. At that stage of the repast when the appetite for solid fare has been satisfied on the part of the guests, the principal attendant presents a dinner knife to the bride, requesting her to cut the cake. If the cake be large and thickly iced, this is a task of no slight difficulty, and the bride's task is considered ended by simply placing the knife in the centre of the cake. The servant then removes the cake from the table, and finishes the work, cutting the cake into pieces about two inches square, and presenting them on a separate plate, accompanied by a small fork, to each guest.

The handing round of the cake, as in everything else connected with the service of the table, commences with the bride. She is throughout the most honoured guest, and is served first, although at her father's table.

Cake having been offered to every one, the business of toasts begins. This is a very tedious and unsatisfactory affair generally to every one concerned, and it is to be wished that considerable restrictions were enforced in the matter. As things stand, the usual plan is for the oldest friend of the family to propose the health of the bride and bridegroom. If he is sensible and considerate, he will not suffer the enthusiasm of the moment to inspire him with extravagant praise of the fair bride, such compliments being received by the most indulgent of friends at the precise value of their worth; allowing a bride is more interesting on her wedding-day than at any other period of her life, that should be no reason for lavishing on her eulogiums unwarranted by common sense.

In return for the above health, the bridegroom rises and tenders his thanks for the honour done. A very few well-spoken words are sufficient for this purpose, no one expecting him to make a speech upon the now so personal a matter as the excellent qualities of his wife.

Some friend on intimate terms with the family then proposes the health of the parents of the bride, to which the father, or his representative, returns thanks. A similar compliment is then paid to the parents of the bridegroom, with the same response, from the oldest friend on their side.

The clergyman's health, if he be present, is then proposed and responded to. Finally, the health of the bridesmaids is proposed, generally by some familiar friend, a married man. The honour of returning thanks for this toast is reserved for the "best man," the bridegroom's friend.

The final toast, having been honoured is the signal for the ladies to retire, the bride leading the way. During the progress of the toasts, a very pretty occupation properly falls to the lot of the first bridesmaid, and as it is one which is conducive to a good deal of well-timed complimentary attention, should not be suffered to fall into



oblivion.^o The task alluded to is the distribution of the bride's bouquet, as wedding-favours, to the assembled guests. These favours, being considered of particularly fortunate omen, are much valued. The bride having selected the flower she wishes especially to preserve as a remembrance of her wedding-day, passes the bouquet to the first bridesmaid, who forthwith begins to loosen the flowers and distribute them quietly to the assembled guests. Every one present should have a flower of some kind given. Of course the privilege of selection is reserved to the bridesmaid, and she does not give the worst to the most esteemed friend present.

The departure of the bride and bridegroom should be arranged to take place without unnecessary delay, immediately after their leaving the breakfast-table. Parents and friends wishing to take a particular and tender farewell generally contrive to enjoy a few minutes' privacy, no emotion or visible depth of feeling being considered appropriate in a scene of festive enjoyment. All agitation of the kind is very disturbing to every one, and if sincerely felt is best concealed, or indulged in out of sight of less sensitive observers. Every one can understand that parents are moved to the heart at parting with a cherished son or daughter, but it is not necessary to excite undue comment on such an occasion as a marriage.

Directly the bride and bridegroom have left, the general company are expected to disperse. Their carriages should be waiting, ready to be called immediately after the departure of the bridal pair. It is not unusual for the bride's parents to receive a larger number of friends than could have been accommodated at breakfast, to celebrate the event in the evening. The ordinary evening party is certainly the most suitable form of entertainment. Sometimes the family and most intimate friends go to some place of amusement for the rest of the day.

In another article we shall refer to the subjects of licenses and banns; wedding dresses; cards or "no cards;" ceremonial calls, and other matters connected with the interesting event.

COOKERY.—LXXVIII.

FRENCH DISHES (continued from p. 125).

Sauce pour le Poisson d'Eau Douce (Sauce for Fresh-water Fish).—Add some onions, mushrooms, and a clove of garlic to a bottle of red wine. Boil them down to one-third of their former bulk, and add a glassful of *jus*. Strain the liquid through a jelly-bag, and squeeze it together strongly, to obtain as much of the fluid as possible. Cut in pieces and bruise two anchovies in a mortar, and add them to the sauce, with some butter, before sending to table.

Sauce au Mouton Rôti (Sauce for Roast Mutton).—Boil the gravy of the cooked meat with salt, pepper, nutmeg, an anchovy cut up small, and a glassful of white wine for a quarter of an hour. Thicken it immediately before it is used with some flour and butter. Before serving at table, squeeze the juice of half a lemon into it.

Sauce de Kari (Sauce with Curry Powder).—Melt in a stewpan a piece of fresh butter the size of an egg, and mix with it half a spoonful of curry powder. When the butter has begun to change colour, add some *fonds de cuisson*, *velouté*, or *jus*. This sauce should not be skimmed.

Sauce à la Crème (Cream Sauce).—Take some parsley, chives, shallots chopped up, salt, nutmeg, pepper, butter, flour, and cream. Boil them in a stewpan for a quarter of an hour, care being taken that only a moderate heat is used, and that the preparation is continually stirred.

Pommes de terre Frites (Sliced Potatoes Fried in Butter).—Place some sliced potatoes in a pan with some butter, over a quick fire; put the lid on the pan, and

place some hot embers over it. When the potatoes are of a good colour, and sufficiently cooked, remove them from the pan, and allow them to drain.

Essence de Gibier (Essence of Game).—Take some rabbits and partridges, cut them into pieces, and place them in a stewpan. If any cooked pieces happen to be at hand, they will answer for this purpose. Put in with them some veal cut up small, and enough white wine to cover them. Simmer them down to as small a bulk as possible, without their changing colour, or becoming burnt. Then pour in some stock broth, and add some thyme, basil, onions and carrots, and season with pepper. The whole is then to be placed on a gentle fire, and when sufficiently done, should be strained through a fine sieve.

Salpicons.—Cut some veal sweetbreads into squares, together with the fatty livers of geese, ham, or tongue, mushrooms, and truffles. Cook the various materials separately, and put them into a stewpan with *jus au vin* already reduced by boiling to the proper consistence. Make the contents hot, but without allowing them to boil. *Salpicons* may also be prepared with the breasts of fowls, the flesh of game, or *godiveau*, &c.

Palais de Bœuf en Filets (Palate of Beef in Fillets).—Wash, and afterwards blanch in hot water, an ox palate, until the thin membrane that covers it may be scraped off with a knife. Boil it, and then divide it into strips about the length and thickness of the little finger. Now take an onion, cut it in slices, fry it in butter until half cooked, then add the pieces of the palate, and a sufficient quantity of *jus* and bouillon. Season with salt, pepper, chives, and parsley, and simmer down to the consistence of a sauce. Add some mustard before sending to table.

Palais de Bœuf Grillé (Ox Palate Grilled).—Prepare an ox palate as previously directed, dress it, and cut into strips; steep the pieces in a pickle containing sweet oil, with salt, pepper, mushrooms, chives, and the juice of a lemon. After the pieces of palate have been well soaked in this liquid, cover them with crumbs of bread, grill and serve them with *sauce piquante*.

Palais de Bœuf Mariné (Ox Palate Pickled).—Prepare, as before directed, an ox palate, boil it, and cut in slices. Pickle the pieces with vinegar, cloves, salt, and pepper. Then prepare a paste with flour, a spoonful of sweet oil, two yolks of eggs, a little salt, and white wine. The pieces of palate are now to be dipped in this paste, which should be of the consistence of cream, and then fried in a pan until they become brown.

Hachis à la Toulousaine (Mince-meat à la Toulouse).—Mince two brains boiled, with some roast beef; season with pepper, nutmeg, and salt; and make them into a paste with melted anchovy butter and some yolks of eggs. Make this paste into balls of a moderate size, and roll them in bread-crumbs. They are then to be fried in butter until they become brown, when they may be sent to table, either by themselves or with tomato sauce.

Hachis de Rôti de Bœuf (Roast Beef Minced).—Place a spoonful of flour in a pan, and brown it with some butter. Add some gravy, or stock broth, with a glass of wine, and season with herbs chopped up and salt and pepper. When nearly ready, put in a little butter, and mix it with the other materials. This dish may be sent to table either with eggs ranged round the dish, or with pieces of bread fried crisp in butter.

Gras Double Grillé (Grilled Tripe).—Clean the tripe in water, and cook it in a pan with onions, carrots, thyme, and parsley, previously cut in pieces. Add a sufficient quantity of salt, pepper, and cloves. When the tripe is cooked enough, allow the fat to drain from it, and cut it into pieces the size of four fingers. Then cover the pieces with a mixture of lemon-juice, salt, pepper, chives, and parsley chopped up small, and some butter or dripping, and sprinkle them over with bread-crumbs. Grill them, and send them to table with *sauce piquante*.

CLOCKS AND WATCHES.—I.

No household article more conspicuously unites useful and ornamental qualities than the clock. It is of the utmost importance that the latter recommendation should not be at the expense of the former, for the handsomest clock ever produced would be worse than useless—an absolute encumbrance, indeed—were it deficient in correctness, and, instead of being the monitor of the household, a false guide to all the arrangements on which the regularity and comfort of the family depend. If neglected, the best workmanship may, and will, fail to ensure correctness; and the first step to knowing how to keep clocks and watches in order is such a general knowledge of the principles of construction as will enable the possessor to dispense, in many cases, with the services of a clockmaker, when a really skilful workman cannot readily be obtained. Besides, the subject is of considerable interest to all possessing mechanical tastes; and in these articles we hope to afford information which will make the principles of construction intelligible, and also give some useful information as to the care and management of clocks of various kinds.

Clockwork.—The action of clockwork comprises, first, the keeping up of the oscillations of a pendulum, by constantly communicating to it some slight impulse; and, secondly, the registering of the number of such oscillations, for the purpose of indicating the lapse of time. To effect this, a train of wheels and pinions is set in motion by means of a force acting on the great wheel, and from the great wheel by the centre and second wheel to the scape-wheel, the scape-wheel being connected with the pendulum by a piece of mechanism termed the “escapement.”

Eight-day Clock.—The illustration represents the interior of a portable eight-day clock. Two barrels, fuseses, and trains of wheel-work are here visible; but that on the right hand alone is engaged in the measurement of time, the other is the striking-train. The works are arranged between the plates, in which holes are worked to receive the pivots of the axles of the wheels. Attached to the dial is the front plate, with an interval in which is contained the hour-hand movement. The mechanism which regulates the striking is also contained in this interval. In order to give an uninterrupted view of the train of wheels, the dial and front plate are not represented in our engraving. The letters A, B, C, D represent the back plate. The fuseses, F, F, are set in motion by the springs enclosed in the barrels, E, E, either by means of a chain or a piece of catgut. The main-wheel of the going-train has 96 teeth, and acts on the centre-wheel pinion, which has 8 leaves, and the centre wheel, *b*, is carried with it by this pinion; the minute-hand is placed on the same

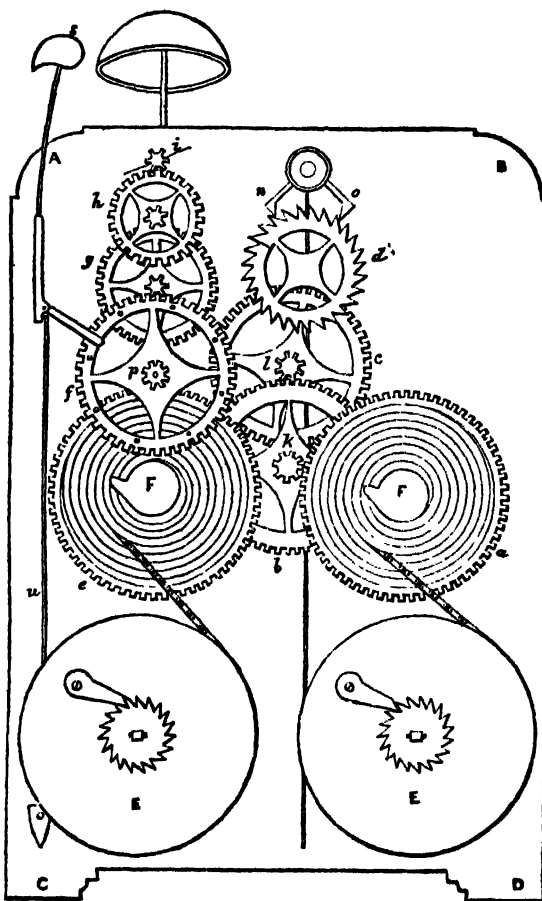
spindle. The centre wheel, *b*, acts on the pinion, *z*, which carries round with it the third wheel, *c*. A pinion, on which the third wheel acts, carries round the scape-wheel, *d*, which acts on the pendulum by the pallets of the escapement, marked *n, o*, and communicates the impulse received by the spring to it. The duration of the vibrations of the pendulum determines the motion of this wheel. Supposing a pendulum of $9\frac{1}{2}$ inches, another of 39 inches, and another of 13 feet were hung on the same escapement, the duration of each beat, and the

consequent interval between the escape of each tooth, would be half a second in the first pendulum, a second in the next, and two seconds in the third.

It is therefore the length of the pendulum that determines the number of teeth and leaves in the wheels and pinions. For a pendulum vibrating seconds, the number of teeth in the scape-wheel is usually 30, since, as the wheel advances to the amount only of half a tooth at each *escape*, its revolution is performed in a minute, and it may be made to carry a seconds-hand. Supposing the centre wheel and the third wheel have 64 and 60 teeth respectively, and their pinions 8 leaves, the multiplication of velocity will be $(60 \times 64 \div 8 \times 8)$ equalling 60; therefore the scape-wheel will turn round 60 times during one revolution of the minute-hand. If the pendulum vibrate half-seconds, it will be requisite to make the scape-wheel with 60 teeth, if it be required to perform but one revolution in a minute. Small portable clocks for a mantelshelf do not possess a seconds-hand, and therefore the scape-wheel has only few teeth, and revolves in less time; the number of teeth and leaves in the wheels, and pinions

which connect the scape and centre wheels, and the length of the pendulum, being adjusted accordingly.

With regard to the number of teeth that should be to a wheel, there is no particular virtue in any special number, and the same remark applies to the number of leaves to the pinions; but it is necessary that the numbers of the teeth of all the wheels multiplied together, and divided by the numbers of the leaves of all the pinions multiplied together, should give the proper velocity-ratio between the slowest wheel and the quickest. If, therefore, the scape-wheel is to revolve sixty times as quickly as the centre wheel—there being one between them which may revolve in any time—the product of the teeth of the wheels multiplied together, divided by that of the leaves, must equal sixty. The “arbor” or axis of the scape-wheel has a small wheel or pinion of some seven teeth or leaves fixed upon it; and that is driven by the second wheel with fifty-six teeth, which consequently revolves in eight minutes; and that has a pinion of eight on its axis or arbor, which is driven by the centre wheel of sixty, which, therefore, will turn in an hour, and is suited to carry the



INTERIOR OF EIGHT-DAY CLOCK.

minute-hand. The centre wheel, again, may have a pinion of eight on its arbor, and if that be driven by the great wheel with ninety-six teeth, it will necessarily turn in twelve hours. It is the barrel that is attached to the arbor or axis of the great wheel, and has one end cut into teeth like the teeth of a saw, and forms the "ratchet," the teeth of which are able to pass in one direction only, under a spring or click attached to the great wheel. The great wheel sets loosely upon the arbor, the end of which, extending through the frame of the clock, is made square, in order that the barrel may be wound, by means of a key, in the direction it is able to move under the click, without moving the wheel. This being done, the weight will pull in the other direction, thus moving the whole train.

It is necessary to remark that the wheels which move more slowly must be larger than the quicker-going ones. The pinions, also, should possess a moderate number of leaves, for if the leaves are very few, they will not drive easily. Again, if they are numerous, the teeth of the wheels must likewise be many and small, which occasions expense. The numbers here given are those of the common long house clock, double the number being used for astronomical and some other clocks.

In clocks the moving force is a weight suspended by a line, wound round a barrel on the axis of the great wheel, or "arbor," as it is termed by clockmakers. This barrel carries the great wheel of the clock, and imparts to the train the movement it derives from the gradual descent of the weight; while the last or quickest wheel drives a fan-fly, or a fly-wheel, or a pair of vibrating arms called a "balance," or a pendulum, to regulate the velocity of the train. If the whole of this force were to act on the wheel-work alone—which it would if the escapement were taken off—the weight would run down quickly, and the train would be made to move with great rapidity. A part of this force, however, is employed in keeping up the vibrations of the pendulum, the connection of which with the wheel-work is such, that not a tooth of a wheel can proceed without being allowed by the swing of the pendulum. Thus it is that a clock will not go when wound up without the pendulum be set in motion; but when its vibrations have once commenced, they will continue until the line has been unwound from the barrel by means of the descent of the weight. In "winding" a clock the weight is raised by winding its line round the barrel, and thus a force is communicated which will keep the machine in action for a certain period. Such time might, without difficulty, be extended to any degree, by increasing the number of wheels. Common watches and clocks require daily winding up. House clocks and marine chronometers require winding only once a week, while many clocks have been constructed which only required winding monthly; a few, too, have been made to go for a year.

Regarding the principle of the wheel and pinion, the greater the multiplication of velocity, the greater will be the loss of force; therefore, the longer a clock is made to go—that is, the slower its weight is in descending—the greater must be the force required to produce the same effect; the weight must therefore be increased proportionally. More minute explanations will be given in another paper.

THE HOUSEHOLD MECHANIC.—LIV.

PLASTERING (continued from p. 127).

Lathing.—It is necessary to describe the process of lathing, which is constantly required in plastering. When there are ceilings or partitions to be plastered, lathing is the first thing to be done, and consists of nailing laths to the joists of ceilings or partitions. If the joists be uneven, they must be "fired-up," that is, made even by slips of

fir-wood attached. Laths are of oak and fir; for the former wrought-iron nails should be employed; for the latter, cast-iron. Fir laths imported from America and the Baltic are those commonly used in the neighbourhood of London, from which places they are brought in blocks termed "staves." Laths are of three different strengths or thicknesses, either "single," "lath-and-half," or "double." The "single" are a quarter of an inch thick, and are, as may be supposed, the thinnest, and consequently the cheapest, containing less amount of wood; those termed "lath-and-half" are three-eighths of an inch thick, that is, about a third thicker than the "single;" and the "double" are half an inch thick, or just double the thickness of the single. Laths are made about an inch wide, and are of two lengths—three-foot and four-foot lengths. Both lengths are required to be used at the same time, as the line of joints should be as much broken as possible, in order to afford a stronger key or tie for supporting the plaster-work. Laths are classed into two divisions, termed "heart" and "sap" laths. The latter are those generally used for partitioning, and the former for roofing. Laths that are very crooked should under no circumstances be used.

The strongest laths should be employed for ceilings, and the lighter or thinner for partitions. The reason for this arrangement is, that additional strength in the lath is requisite for supporting the weight of the ceiling. In nailing up laths, they should be placed about three-quarters of an inch apart. The operation of lathing is commonly followed up by "laying," which we have already described. Laths are made by splitting up "staves," or blocks of wood, which is termed "rending," the term "lath-render" being one very familiar.

Lathing, Laying or Plaster One-coat, and Set.—This expression implies when the work, after having been lathed, is covered with one coat of "coarse stuff," or lime and hair, and, when that is sufficiently dry, a thin, smooth coat of pure lime is spread upon it, or, as it is termed in the trade, "putty" or "set." This coating is laid on, and spread with the "smoothing-trowel," which should be used with the right hand, whilst with the left is held a large, flat, hog's-bristle brush. As the lime-plaster, "putty," or "set" is spread with the smoothing-trowel on the surface to be plastered, the other hand is busily occupied with the brush, dipped in water, drawing it backwards and forwards over the work just executed, and smoothed with the trowel held by the right hand. By this process a surface moderately level may be produced, which is thought sufficiently exact for cheap work. Work executed in this style is termed "two-coat work," and may be shortly described in the following terms:—Cover the first coat, when very dry, with a gauge or mixture of putty and plaster, spread with a smoothing-trowel, and a flat hog's-bristle brush dipped in water. "Two-coat work" is likewise termed "render and set," when it is performed upon brick or stone-work.

Set.—Having had occasion to allude to the word "set," it is well, before continuing our directions, to explain what "setting" means. "Set" is either the second coat upon "rendering" or "laying," or the third coat upon "floating," laid on when the preceding coat is half dry. "Setting" for ceilings is composed of plaster and putty, with a small portion of white hair. This composition is called "gauge." For common ceilings the "setting" is made without hair, the same as used for walls set for papering, viz., "fine stuff" and sand. The "setting" to "float" work is performed in a similar manner to that prescribed for "laying;" but, since it is employed for best work—viz., "three-coat work"—it is executed with greater particularity and exactness. To the "setting" for this work, moreover, it is customary to add to the ingredients we have named a sixth part of plaster of Paris, which not only causes it to dry much quicker, but gives it a

much closer and more compact appearance, and renders it better calculated to receive the whitewash or colour when quite dry.

It is a matter of the utmost importance in plastering, that the under-coats should be in proper condition with regard to dryness when the "setting" or last surface is applied. The "floating" intended to receive the "setting coat," and which we shall presently describe, should not be too dry before the "set" is laid on, or there will be risk of the "setting" peeling off, or of its assuming the appearance of slight cracks, which are very frequently observed even in the ceilings of best rooms. There will be also the danger of an appearance like small shells being produced. In "floated" stucco-work the case is quite different, for in it the "pricking-up" coat cannot be too dry.

Causes of Cracks in Ceilings.—Before proceeding further, it may be well to remark the general causes of cracks in ceilings, which have particular reference to the divisions of the art we have been treating of. Cracks and other blemishes in ceilings are generally attributable to an undue weight of plaster being attached to weak laths, or, on the other hand, to too little plaster being attached to stout laths. If the laths be carefully laid, and plastered over with judgment, in accordance with the weight they are calculated properly to support, the cracking of ceilings will not occur. Cracks are often attributed to imperfection in the timbers of the building, which is seldom, if ever, the cause.

Lathing, Laying, or Plaster One-coat, Floating, and Set.—This is three-coat work, and resembles in operation, with the exception of "floating," the class of work styled "lathing, laying, and set," which is two-coat work. The first coat, or "lay," having been laid on, is "pricked-up" in the manner described under that head, for the purpose of receiving the "floating," and causing it to adhere more firmly than it would, had it not been prepared by "pricking-up."

Floating signifies the reduction of the surface to a level plane, and is performed by one man or more with the "hand float." A "float" is an instrument of wood, formed of a piece of half-inch deal, eight or nine inches long and three or four wide. The surface of this instrument is planed perfectly smooth. A handle is upon the upper side, and the edges of the under or smoothing surface are bevelled off.

For angles, a float termed a "quirk float," is used, and another, termed a "Derby float," is employed for use by two men.

Great care is requisite in the applying of "floating" either to ceilings or walls. All work to be "floated" should be tried by the plumb-line, to ascertain that it is perfectly flat and level, before the "floating" is proceeded with. To correct any irregularities, the process termed "filling-out" is employed, which is the filling up of hollows with a trowelful or more of lime and hair only. The "floating" should only be half dry when the third coat, or "set," is laid on.

It must be scrupulously borne in mind that, while in all kinds of plastering the under-coat or coats should be allowed good time to dry thoroughly before applying the next coat, it must not be forgotten, with regard to "setting," as we have already stated, that the "setting" be laid upon the "floating" not more than half-dry, otherwise peeling off and cracking are almost sure to be the result. "Screeds" may then be formed, for the formation of which the plasterer should be provided with a substantial straight-edge, from ten to twelve feet in length, requiring two men to handle.

Screed.—This term is applied to a particular style of plastering, executed with lime and hair. "Screeds" are raised surfaces, seven or eight inches in width, and gauged quite level by drawing the straight-edge backwards and forwards. They are made at a distance

of three or four feet apart, in a vertical direction all round the walls or partitions of an apartment. The "screeds" being completed, the intervals between them are filled up with lime and hair, until they become flush with the surface of the "screeds." All superfluous plaster in the intervals projecting above the "screeds" is then removed by means of working the straight-edge horizontally over the "screeds," a level plane surface being thus produced. This style of work may be applied to ceilings as well as to walls and partitions. This should be done by forming the "screeds" across the ceiling, that is, in the direction of the breadth of the room, and by filling up the intervals as before directed. Further particulars will be found under the head "Stucco."

Stucco.—This kind of plaster or cement is employed both for outside and inside work. The making of stucco for outside work has received the continued attention of chemists as well as architects and plaster-manufacturers. Many compositions have been invented; but, notwithstanding many of them have been pronounced to be very good, there appears to be little chance of ever approaching the ancient Romans in the manufacture of this commodity.

If new walls are to be stuccoed, the groundwork of bricks or stones is left rough and uneven; but if the wall be old, the mortar must be raked or picked out from the joints, and from between the bricks or stones, until the wall becomes indented all over. It must then be swept or dusted, and soaked well with clean water. Some compo should then be taken from the barrel, and mixed to the consistency of whitewash. Here we may remark that compo, which is usually stored in barrels, should be kept well preserved from the air until the moment it is required for use. The wall should then be smeared over with a thin mixture of compo with a flat hog's-hair brush, and allowed to become comparatively dry, which may be ascertained by the surface having become whiter and more transparent than when the whitewash of compo was first laid on. This is termed the "roughing-in."

The next process is to mix a moderate amount of compo out of the barrel with water to the proper consistency for plaster. With this plaster screeds should be formed upon the wall, by means of spreading the plaster seven or eight inches wide on the upper part of the wall, and also down the two sides or ends of the wall, commencing to lay on the plaster from the top and continuing it to the foot of the wall. This work must necessarily be proved by the plumb-line and straight-edge, and consequently two men are generally employed—one to supply the stucco, while the other is engaged with the plumb-rule and straight-edge. This primarily large screed having been formed, small screeds must be made within it. These should be vertical, and placed four or five feet apart, unless openings in the wall should prevent; when, under such circumstances, they must be arranged as near the distance named as possible. The whole of the screeds having been duly made and proved, require to have the intervals filled in, which should be executed as described under the head "Screed." For this purpose a greater amount of compo is required to be mixed than was done for forming the screeds. The special mode of using the straight-edge for a large surface like a wall, is to apply it across the screeds, and drag it from top to bottom, so as to remove all superfluous plaster projecting beyond the screeds. Should any hollows or uneven places be found on the wall after applying the straight-edge, they must be filled up with compo, and the straight-edge drawn across the spot until the intervals are brought exactly level with the surface of the screeds. The whole should then be tested by the plumb-rule.

For the completion of a wall when plastered, a wooden float is usually employed to float or rub over the surface, for the purpose of hardening it. The mode of executing

this operation is to take the float in the right hand and a flat brush, dipped in water, in the left, sprinkling a small portion of surface with water contained in the brush, and rubbing the same with the float until a fine, smooth surface is produced. One portion of surface having been smoothed and finished, another is commenced until the whole has been gone over. It should be remembered that this operation is to be commenced upon the part of the wall first plastered.

Trowelled Stucco.—This term is applied to the plastering of inner walls intended for painting, and ranks amongst the neatest work of the plasterer. This stucco must always be worked on a floated surface, which must be thoroughly dry before the stucco is laid on. The ground having been prepared and made as level as possible, screeds are formed as described under the head "Stucco," but not exceeding five or six feet either in breadth or depth. The intervals having been filled with stucco, after the manner described under that head, each is sprinkled with water, and well rubbed with the float until the surface becomes perfectly smooth. This stucco must be *thoroughly* dry before the paint or other finishing is applied.

Bastard or Rough Stucco.—This kind of stucco consists of a large amount of sand, and is very coarse in appearance. After having been rubbed and made firm, a piece of felt is bound round the float, and the work slightly pressed, in order that the felt may raise the grit of the stucco. This stucco may be made of "fine stuff" or chalk lime and fine white sand, in about equal proportions. The walls are prepared for this work in the same manner as described under the head "Stucco." For common walls the stucco is often very slightly trowelled on, and not floated at all—a little hair only being mixed with the composition.

Rough-casting or Rough-wall.—This process of stuccoing is much cheaper than other stucco, and is therefore very generally used upon laths, and otherwise as an exterior walling to country cottages and farmhouses. The wall intended to receive this stucco is laid with a coating of lime and hair, which is pricked up for the reception of a second coat of the same material. As soon as the first coat is sufficiently dry, the second coat is laid on, which is spread as smoothly as possible with the trowel. Immediately a small portion of work is covered, a man follows with a pailful of rough-cast, composed of fine gravel (which has been cleanly washed from all earthy particles) and pure lime and water—the composition being of a semi-fluid consistency. This stuff is thrown from the pail against the newly-stuccoed wall by means of the use of a wooden float, measuring about five or six inches either way across. To the back of this float a round wooden handle is attached, which the workman holds in his right hand while he throws on the rough-cast. In his left hand he holds (at the same time) an ordinary whitewashing brush, which he dips in the rough-cast, and with which he brushes over and colours the stucco, as also the rough-cast already stuck on the wall. This use of the brush lays the gravel-stones equally, and colours the stucco, giving it a finished appearance.

ODDS AND ENDS.

Size and Glue.—Size is prepared by boiling in water the horns, hoofs, fragments of skin, &c., from various animals, for a long time, until they are converted into gelatine. The fluid is then strained, all fat that may be floating on its surface removed, and then allowed to cool. When the gelatinous liquid is cold, it forms the jelly-like mass known as size. This substance is employed for many purposes connected with the household. Painters often use it for indoor work and cheap furniture, mixed

with a little lead, for a first coat, instead of paint. But, although it saves both paint and labour, work done in this way is not durable, and quickly blisters and peels off. It is used also for coat-painting over new walls, to enable paper-hangings to hold. Sometimes it is applied to wall-papers meant to be varnished, to render them more absorbent of the varnish. Mixed with whitewash and distemper colours for walls, it prevents their rubbing off so easily. It is also said to be employed to adulterate fruit jellies. When very thick size is cut into slices, and carefully dried, it forms the substance known as glue.

To Repair Tortoise-shell when Broken.—Clean the tortoise-shell as perfectly as possible, place the ends of the broken parts together, so as to overlap a little. Then bind a wet strip of linen round them, and compress the part where the broken pieces join with a pair of hot tongs.

Ink for Writing on Zinc Garden Labels.—Powder in a mortar four parts of hydrochlorate of ammonium (sal ammoniac), and rub it up with the same quantity of verdigris, and one part of lamp-black. When the materials are well mixed, add twenty parts of water, and continue to rub them with the fluid until dissolved. This ink can be used only with a quill pen or a camel-hair pencil, as it acts on steel pens.

Plate Powder for Cleaning Silver Articles.—An excellent powder for this purpose is composed of whiting, two parts; white oxide of tin (commonly called polisher's putty), and calcined hartshorn, one part of each. These materials must be reduced to a very fine powder, and then well mixed.

To Purify Linseed Oil.—To purify and remove the colour from linseed oil, add a teaspoonful of finely-powdered and perfectly dry whiting to about two ounces of linseed oil. Place the oil with the whiting in a bottle, shake them together, and place the vessel by the side of the fire. After a certain time, which will vary according to the description of oil employed and other circumstances, from a few hours to two days, the whiting will be found to have settled at the bottom of the vessel, and to have taken down with it all the impurities and colour from the oil. Then carefully decant the clear portion of the oil, so as not to disturb the sediment at the bottom of the bottle, and preserve it in a well-stoppered vessel.

Abernethy Biscuits.—Mix into a paste one pound of the best flour with one ounce of butter and the same quantity of loaf sugar, together with half a drachm of coriander seeds, and a quarter of a pint of water. Make them into biscuits, perforate the upper part with a number of holes, and crimp the under surface. The holes are made to allow the steam produced during the baking to escape, and thus prevent their swelling up when baked. The quality of the biscuits will be improved by employing milk instead of water, and by the addition of a few eggs. The quantity of materials directed to be used will make about eight biscuits. The temperature of the oven in which they are baked must not be too hot.

To Clean Brushes and Painting Pencils.—When a brush has been used with turpentine it is best cleaned with warm soap and water. When it has been employed for painting in oil, turpentine should be used for removing the paint. If the brush has been used in varnishing with a spirit varnish, it must be cleaned with rectified spirits of wine; but if with a varnish prepared with turpentine or linseed oil, oil of turpentine must be the fluid employed to clean the brush with.

Ink for Parchment Labels.—A useful fluid for writing on parchment labels and similar materials, on which, owing to the slightly greasy nature of the surface, ordinary ink will not adhere, may be prepared by dissolving the ammonio-sulphate of copper in water to saturation, and filtering the solution. In using this ink steel pens must never be employed, owing to the readiness with which they would be attacked by the copper in the fluid.

To Whiten Discoloured Pearls.—When pearls have been long kept they are apt to become discoloured. This may be remedied by the following process :—Boil some bran in water, with a little alum and cream of tartar. When the liquid has become sufficiently cold to bear the immersion of the hands, put the pearls in it, and rub them gently with the bran. Continue to do this until the water is cold, then remove the pearls, and dry them in the dark, on a linen cloth or sheet of white blotting-paper.

Liquid Glue for Fancy Work.—A useful cement for joining paper or pasteboard, in making cardboard boxes and similar articles of fancy work, is thus prepared :—Dissolve by a gentle heat two ounces of the best glue, or gelatine, in a quarter of a pint of strong vinegar. Then add to it—for the purpose of making it keep—one ounce of rectified spirits of wine, or any other strong spirit. This glue must be kept in well-closed vessels.

DOMESTIC MEDICINE.—L.

RHEUMATIC FEVER, OR ACUTE RHEUMATISM.

THIS is quite a different disease from what is ordinarily called rheumatism. As we have explained, rheumatism, in the ordinary sense, means dull aching pains in oldish people, and especially in damp weather. It does not make the patient feel ill or feverish. But rheumatic fever is a condition of fever, attended with perspiration, and swollen and intensely painful joints. Many joints are affected, either all at once or in succession. To-day the pain may be in one knee, and to-morrow the other knee may be affected. The disease is often slow to come on, and generally still more slow to leave off. It begins sometimes with shivering ; at other times with undefined poorliness and debility, perhaps accompanied with headache and some pain or stiffness in the joints. Then follows restlessness and fever, and all the characteristic pains and perspirations. The perspirations are very characteristically copious and acid, the sour smell of them being noticeable to a bystander. There is a loss of appetite and a furred tongue, and a copious red deposit in the urine, which is generally scanty. This state of matters may go on for weeks. An eminent physician, on being asked the best cure for rheumatic fever, said, "Six weeks." The disease is not very often fatal, and would be still more rarely so were it not for a tendency in the disease to attack either the outside of the heart or one of its valves. The fibrous structures of which the valves are chiefly made up seem to have an affinity for the rheumatic matter, and to attract it just as the joints do. A great part of the importance of this disease is in the pain and distress and sleeplessness which it involves. Unlike common and chronic rheumatism, it is, on the whole, a disease of youth and middle age, rather than of elderly persons. Persons subject to it generally had their first attack in early life, and often in childhood.

Causes.—Rheumatic fever, according to the views of doctors, is a blood disease ; it depends on something in the blood, which circulates to every part and both sides of the body alike. From the acid nature of the perspiration and the urine, it is supposed that the blood is charged with acid material, and the peculiar acid is supposed to be *lactic acid*. Readers will remember our explanation of gout, as depending on an acid in the blood—uric acid. In gout this point has been pretty well demonstrated by chemical analysis of the watery portion of the blood ; but in rheumatism the chemical element has not been demonstrated—it is only inferred from the symptoms. Leaving the more immediate and hidden causes of rheumatic fever, let us ask what are its exciting causes. We should be careful, before speaking of exciting causes, to say that there is something constitutional in rheumatic fever. It occurs more frequently in one family than in

another, and oftener in one individual than another. It is very apt to recur in those who have once had it. Hence the need of extra care to avoid the influences which induce it in those who have once suffered attacks of it. What are the causes which excite rheumatic fever ? They are exposure to cold and dampness, or to wet cold, especially if the person so exposed has been previously depressed by too much work, or worry, or anxiety, or other causes of nervous exhaustion. People subject to rheumatic fever may often avoid it by avoiding exposure, by sufficient sleep at night, and comfortable clothing, and especially good flannels.

Treatment.—No mere domestic doctor will undertake the treatment of so painful and important a disease as rheumatic fever. It needs the best medical skill and wisdom that can be had. We shall, therefore, occupy our readers' attention mainly with a few instructions as to the best way of preventing the disease, and a few hints as to the domestic remedies that are most likely to give relief.

Persons who have once had rheumatic fever, or belong to families in which it has occurred, should take all the precautions indicated above—avoid late hours and loss of sleep, avoid exposure to cold and damp, and wear warm clothing. They should especially avoid exposing themselves to cold, either when they are tired, or chilled, or in perspiration ; for there is some reason to think that the acid of the perspiration causes the disease if the perspiration is checked. If the health is at all low, it should be attended to. Amongst remedies that are likely to be of use, and to stave off attacks of rheumatic fever, is cod-liver oil. It fortifies the constitution, which we have implied is not strong generally in those liable to rheumatic fever. Diet should be good and nourishing, but withal simple and discreet. Beer and porter, especially if acid or in bottle, are doubtful beverages for the rheumatic, and to be avoided as a rule ; while diet should be good, simple, and regular, it should not be excessive. Dining out is a luxury that should be warily indulged in. Where a place of residence can be selected, a dry, clear atmosphere is to be preferred. So much for preventive measures.

As to domestic measures calculated to be of use in the disease, the bedding of a rheumatic patient should be comfortable and well-aired. Blankets are preferable to sheets if the weather is at all cold or damp. In the way of local treatment of the affected joints, the most important point is perfect rest. A joint that has acute rheumatism in it needs to be treated with infinite tenderness—not to be touched or moved except by the most gentle hands. One of the most soothing applications is poppy fomentations for twenty minutes, and the joint should then be wrapped in ample layers of wadding.

Diet will be the subject of medical direction, but milk, mutton broth, or beef-tea, sago, toast and water, are all safe articles ; if the case lasts long, and there is much weakness, a little sherry or brandy in soda-water. As for medicines, we must say little. The medical treatment of rheumatic fever is much improved, both negatively and positively. The details of it must be left to the medical man. For those at sea and other outlandish situations, we may say that Dover's powder at night is a valuable help to ease and sleep : eight or ten grains may be taken by adults, if in much pain, at bedtime, in gruel. The following mixture, too, is likely to be useful as long as the urine is thick or high-coloured :—Bicarbonate of potash, eighty grains ; spirits of nitre, two drachms ; tincture of henbane, one drachm ; water, eight ounces. Mix. An eighth part every four hours, with as much water. Along with this medicine two grains of quinine in a pill, or in moist sugar, every six hours, is very useful. By the preventive measures advised future attacks may be warded off, and even in cases where the heart has been affected, very good health may often be enjoyed.

EARTHENWARE.

EARTHENWARE is a subject about which much interesting as well as much useful information might be written, for it has a long and, in many respects, curious history, and has always been a branch of manufacture upon which much artistic taste and skill have been bestowed. Into these questions we shall not, however, be able to enter at much length. Under the common title of earthenware, all vessels made of burnt clay might properly be included; but in the present article we propose to treat of the commoner varieties only, and to leave those more ornamental productions, which can be classed together as "china," for future consideration.

In the earliest ages of the human family, and long before the introduction of metals, some kind of rude earthenware was in use, as is proved by the fragments found among those remains of primeval man—the first Swiss lake-dwellings and the Danish "kitchen-middens." These were made without the potter's wheel; that invention is, however, exceedingly ancient, and dates backwards from far beyond historic times. Beautiful as was some of the pottery of the classical nations, it does not appear that they were acquainted with the art of giving a vitreous glaze, although it was known to both the Egyptians and Chinese at an early period.

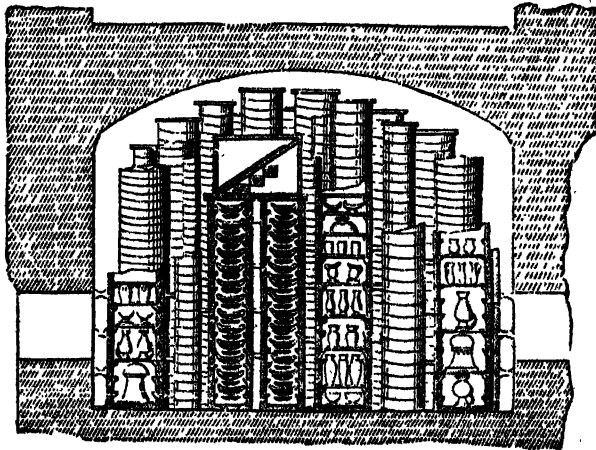
Even in Roman times there was a manufactory of pottery on the site of Burslem, in what is now known as "The Potteries," and common red ware was still made there in the fifteenth and sixteenth centuries; but the manufacture was greatly improved in the seventeenth century by two Nuremberg makers, the brothers Elers, who settled in Staffordshire. They introduced a glaze of common salt, instead of the lead previously used upon the red clay body. This, being thoroughly vitrified, gave to the article a coating of actual glass at once clean and transparent. They kept their art a secret, and in consequence of trade persecutions were obliged to leave the district; but their method of glazing was acquired and carried on by another Staffordshire potter, named Astbury, who has also the honour of afterwards first introducing the mixing of coloured flints with clay, for the manufacture of white stone-ware, and thus preparing the way for the importance of that great branch of the Staffordshire trade.

The greatest promoter of the earthenware manufacture in Staffordshire was, however, Josiah Wedgwood, who was born in 1730; and it is chiefly through his talents and exertions that the strip of barren land, eight miles long by six broad, known as "The Potteries," now sustains a population of upwards of one hundred thousand operatives, and that the wares they produce are in common use throughout the known world.

Manufacture.—Clay, more or less fine in quality, forms the basis of the material from which all the different kinds of earthenware are made, but this is generally mixed with other materials. For the ordinary whiteness-ware of Staffordshire, a certain clay is used; in the better kinds this is mixed with Cornish clay, which results from the decomposition of granite, and is procured from Cornwall. With the clay are mixed coloured flints, which are reduced to a powder by burning in a

kiln, and then quenching in cold water. The process of manufacture in common pottery and in porcelain is much the same; the materials are very finely ground and mixed with water to the consistence of cream, then joined in proper proportions, which differ for different wares. This semi-fluid mixture is reduced to a paste by heat and evaporation, which paste, when properly tempered, is shaped on the potter's wheel, or pressed in moulds. Plates are generally pressed in a mould, and finished by turning the mould round. The two halves of oval dishes are formed separately, and afterwards joined. Spouts, handles, and similar protuberances are made separately, and fixed upon the article, after it has been shaped, with wet clay. The technical name for giving the shape is "throwing." The potter's wheel is a round, horizontal board, to which a revolving motion is given. The lump of clay is placed upon it, and first shaped by hand, the article being afterwards finished with proper tools. The vessels are, when dry enough to bear removing, baked in kilns or ovens; this occupies about fifty hours. The ware is then in a state called "biscuit," and

would be too porous to hold liquids; it has, therefore, to be glazed, but before this is done the coloured design is, in common earthenware, applied to the surface. To colour common stone-ware by hand, in the same manner as costly china, would involve too much labour; engravings are therefore generally employed, which are printed on a thin, unsized paper, which is soaked in soap and water. These are applied to the "biscuit," and rubbed with a roll of flannel; the ware is then dipped in water, and the paper peels off, leaving the coloured design upon the earthenware. The pale blue colour which we most com-



POTTERY KILN.

monly meet with, and which is an imitation of that used by the Chinese, is derived from arsenite of cobalt. The vessels have then to be dried, covered with a transparent glaze, and again "fired." Various glazes are employed according to the kind or quality of the ware; silica, lead, or salt, in different proportions, being those in most general use.

In the manufacture of white stone-ware, the Staffordshire makers are unrivalled, whether as regards quality or cheapness.

Varieties.—Common red pottery, of which crocks, pans, &c., are made, has been manufactured in England in all ages. It is composed of the finest kinds of brick clay, and to the oxide of iron contained in that clay it owes its red colour when burnt. Its usual glaze is derived from litharge of lead, ground up with clay; this is laid upon the vessels, which are exposed to a heat sufficiently great to vitrify the glaze, and through this almost transparent glazing the native red colour of the ware shows itself. The addition of manganese to the above makes the black glaze sometimes seen. Common red earthenware will not bear exposure to the fire, and cannot safely be used for many purposes in cookery, owing to the poisonous nature of the lead employed in glazing, which is liable to be dissolved by vinegar, the acid of fruits, especially when long, or even by boiling fat. It is therefore wholly unsuitable for pickle or preserved meats. A more Continental method of the use of this description of ware for cooking purposes is forbidden, under penalty of imprisonment. When glazed with

however, common red ware is perfectly harmless. This latter glaze is given by throwing common salt into the kiln during the "firing;" the salt is decomposed by the heat into its constituent parts of muriatic acid and soda, the former flies off in white fumes, the latter attaches itself to the clay, and becomes an actual coating of glass spread over the surface.

Common brown stone-ware has been made in Europe since the fifteenth century, and the manufacture was brought to England and established at Lambeth by the Dutch about two hundred years ago. It bears exposure to fire admirably, and is therefore best adapted for pipkins and other vessels to be used for boiling or stewing. The substance is exceedingly dense, and it will, if well made, strike fire with steel. It is composed of fine pipe-clay mixed with sand, and sometimes with broken stone-

therefore harmless. There is, however, a dark brown glaze, the composition of which is a secret, but is supposed to be derived from an admixture of Stourbridge clay and pounded Hessian crucibles. Nottingham ware is a well-known variety of brown stone-ware. Iron-stone ware, another variety, is not, as its name would imply, made of iron-stone, but is a thoroughly vitrified kind of ware, and possesses almost all the qualities of Japan porcelain in hardness and density, though without its beautiful whiteness and transparency. Articles in this ware are thick and extremely heavy, and generally of squat and ungraceful shapes, and, indeed, the material is one which does not admit of high decoration. It was introduced in 1805, and is still made in considerable quantities; it is dear, but exceedingly durable, and cannot be broken with a slight blow. The grey Dutch stone-ware is said to be stronger than any manufactured in this country, and to have a still greater power of resisting fire. Of English white stone-ware we have already spoken at some length; this is the common earthenware of our shops and houses, and is frequently, but improperly, spoken of as delft.

A number of other wares were introduced by Wedgwood. That which more especially bears his name is, in general, semi-vitrified, and will not take a strong surface-glaze, but any colour can readily be given to it by means of metallic oxides, and by ochres. In the state of paste, it is exceedingly plastic, and may easily be moulded and formed to any shape. In this the ornamental parts are moulded separately, and afterwards stuck on by women and children.

Queen's ware, so named from its being patronised by Queen Charlotte, was introduced in 1763, and was received with such favour that it was used for the table by all who could afford it. It was a cheap and excellent ware, of a cream-coloured hue, and its composition was of the whitest clay, mixed with ground flints, having a vitreous glaze. Cane-coloured biscuit, which is still in use, was another compact ware, without glaze. That made at the present time, however, is sometimes glazed slightly. White biscuit was thoroughly vitrified, and, with the exception of transparency, possessed most of the qualities of porcelain. Black Egyptian was another hard ware, which owed its black colour to manganese. Through the good taste of Wedgwood and his designers, the forms in which this ware was produced were exceedingly classical and beautiful, and the result was that it temporarily superseded china for the use of the tea-table. It was unglazed, and this fact gave greater effect to its ornaments, but it possessed the great disadvantage of being difficult to keep clean. As a fashionable article of luxury, Black Egyptian has long been out of date, though a cheap and inferior description is still made; this, unlike Wedgwood's original ware, is covered with a slight glaze. Jasper ware consists of white bas-reliefs on a ground coloured blue with cobalt. When first brought into notice, these figures

were freely sold at large prices, and were exceedingly profitable to the makers. The manufacture was, however,

the persons employed disclosing the secret of their manufacture; a cheap and inferior ware was made by other firms, and Wedgwood's original and beautiful productions ceased to be so highly esteemed. An exceedingly hard ware, of the nature of porcelain, invented by, and known as, Wedgwood, is that used for chemists' mortars; it possesses the qualities of resisting corrosion by acids or fusion by heat to a very high degree, and is therefore extremely valuable. Nearly one half of this consists of powdered granite and flints.

Purchasing Earthenware.—As in most other articles, it is the truest economy in purchasing earthenware to buy only such as are good of their kind, though it may involve rather greater outlay; for though all earthenware is equally liable to be broken by accident or carelessness, the better qualities, which are made of superior materials, and are more carefully glazed, will bear a severer blow without breaking than the inferior; and, so far as legitimate wear and tear are concerned, are far more enduring, since they do not so readily crack from exposure to heat or from the action of hot water. Common table earthenware, being thinly glazed, has a disagreeable tendency to crack on the surface, and to absorb grease, which it gives out when again warmed, and thus acquires an exceedingly unpleasant smell and taste. The thickness and, therefore, the greater weight of common ware, is also a serious disadvantage in large families, where it has to be removed in considerable quantities. There is, moreover, an advantage in having good things, which should not be overlooked. This is, that they will be treated with greater care, and for that reason last much longer than the common.

It is always advisable in making purchases to select those articles which are of good and graceful forms; they are not more expensive than those which are ugly, and in earthenware, a thing which we have constantly before and around us, it is of no small importance, as a part of the cultivation and refinement of our minds, that we should be accustomed to beauty. It is a mistaken idea that jugs of a squat and, therefore, ugly shape only should be bought, on the ground that they may be cleaned more readily; as we shall show in the ensuing section that, if properly handled, one of a tall and narrow shape may be washed quite as effectively. As a general rule, those decorations look best upon earthenware which are of a conventional character. Direct representations of natural objects, however pretty in themselves, rarely look well when applied to distinctly useful articles; and for these either set patterns or natural forms reduced to stiff and conventional designs are preferable. In dinner and tea services, better taste is shown in selecting those with ornamental borders only, and a design in the centre of each article, than those in which the whole space is covered. In dessert services, natural representations of fruit and flowers are appropriate, though objectionable for other purposes. For chamber services, where the appearance of cleanliness is of paramount importance, the articles look best almost white, and with only a few lines and bands of colour; and it is well to buy those of quite modern form, for much improvement has recently been made in articles of this class, modern basins and ewers being large enough to suit our improved ideas of cleanliness, exceedingly light as compared with the old, and much more elegant in shape. In no kind of earthenware, china excepted, is gilding desirable—it greatly increases the cost, without ensuring any corresponding improvement in appearance; indeed, as it generally soon wears off in places, it results, on the other hand, in a tawdry and shabby effect. Articles which have a pattern raised or in relief, though they may look pretty when new, are scarcely to be recommended, as it will be found almost impossible to keep them perfectly clean.

Management of Earthenware.—New earthenware should, before being used, be soaked in cold water for twenty-four hours; this will render it less liable to crack, as well as enabling it to be made thoroughly clean. For washing articles which are not greasy, such as tea things, &c., every housekeeper should be provided with a good-sized wooden bowl, for by contact with this they will be less liable to be chipped and broken than when an earthen basin is used. Still further to avoid the danger of breakage, one article only should be put in at a time. A small cloth should be kept with which to cleanse them while in the water, for merely rinsing them and then wiping them on the tea-cloth will not ensure cleanliness. For washing the insides of jugs, a miniature mop, with a handle a foot long, like those sold for cleaning the chimneys of lamps, is indispensable. A little soda should sometimes be used for washing jugs, and if the same is occasionally used for washing tea things, it will make them look much cleaner and brighter. Soda should, however, never be used except in small quantities, nor should it be constantly employed, as it has a tendency to injure the glaze. Soap or potash has not this injurious effect, but neither cleanses so thoroughly as soda. For tea cloths linen must be used, as cotton fabrics are not sufficiently absorbent to dry the earthenware. For washing greasy earthenware, two tubs of suitable size should be provided, one, in which to wash them, must contain hot water with a little soda, or, for the reasons stated above, potash or wood ashes, and the other, in which to rinse them immediately after they are washed, must be filled with clean cold water. After rinsing they should be placed in a tub, in which they will be dry and fit to use in put by in an hour. Without the soda or some similar substance, perfect brightness and cleanliness will not be secured. For keeping earthenware, a dry closed cupboard is to be recommended, for if the articles become either damp or dusty they will not look bright or well, even though they may be wiped when required for use.

Kinds of Earthenware Adapted to Different Uses.—It seems scarcely necessary to remark that common white stone ware, or, as it is erroneously called, delft, is sufficiently well adapted for use as dinner, tea, and chamber services, and for jugs, it is also best for jam pots, white jars being more cleanly as well as more wholesome for this latter purpose, since the glaze upon them cannot be affected by acids. We should, moreover, recommend the use of small jam pots, as these when once opened are quickly finished, and the contents are not exposed to injury by contact with the air, as they would be in large jars. For pickle jars, brown stone ware, or Nottingham ware, which is exceedingly hard, and which has a glaze that cannot be affected by the powerful acid of vinegar is preferable. Though this ware is the best absorbent, some portion of the vinegar will always remain in it, and pickle-jars should therefore never be used for other purposes, for pickles, jars previously used for the purpose are better than new. As regards these, the reverse of our observations respecting jam pots holds good—pickles do not suffer from exposure to the air when once opened, if they are again carefully closed, and the pickles will always be better in large jars than in small. Nottingham ware should also be used whenever cooking is done in an earthen vessel, as in stew pots and pipkins, but no earthenware vessel will long bear immediate contact with the fire. Nottingham ware pots, with closely-fitting lids, will also be found most useful articles in which to keep grocery stores of various kinds. There is a kind of common yellow ware, chiefly sold in the form of deep round dishes, which is exceedingly cheap, and which is well adapted for larger purposes; so is the common white ware, and dishes of this should be provided on which to place cold joints, which ought not to be set by on dishes belonging to the dinner service.

Mending.—Whenever it is intended to mend broken earthenware, care should be taken that the edges are not chipped or rubbed, and the pieces may be reunited by boiling the article in skim milk, or a very strong cement may be made by boiling slices of skim milk cheese into a paste with water, and grinding the paste with quicklime in a marble or Wedgwood mortar.

SOCIETY - III.

WEDDINGS (continued from p. 139).

MARRIAGES if performed by licence, must be solemnised in either parish wherein one of the persons has been for the preceding fortnight resident. The church where the marriage ceremony is to take place must be named in the licence. The parties themselves are not obliged to take out the licence personally, provided that whoever undertakes the office takes oath that both the bride and bridegroom elect are of full age, and, if minors, have the consent of their parents and guardians. Marriage licences may be taken out at the proper office at Doctors' Commons. The cost is £2 2s 6d. Special licences differ from the ordinary licence in permitting the parties to be married at any place not named, and at an hour different from that which is otherwise compulsory. Marriages, without a special licence, can only be solemnised between the hours of eight o'clock and twelve in the forenoon of the day.

When a licence is not obtained, the banns must be published on three successive Sundays by the officiating clergyman of the parishes where the persons reside. The banns are generally read after the second lesson in the morning service. Any person knowing of an impediment to such marriages is bound to disclose it. The declaration may be made privately to the clergyman in the vestry. The marriage must be solemnised in one of the parishes where the banns were published, and the clergyman officiating at the ceremony must be furnished with a certificate of the publication of the banns in the other parish.

Nearly all dissenting places of worship are licensed for the celebration of marriages, but it is necessary that the registrar of the district should be present. Marriage, without any religious ceremony, at the registrar's office, is legal, and comparatively inexpensive, the fees being small and fixed, but the great majority of persons consider marriage a religious as well as a civil contract.

The number of bridesmaids chosen to attend the bride to the altar depends on the style of the wedding. If it is intended to be a very gay and brilliant affair, any number from four to six or eight bridesmaids would be appropriate. If only a quiet wedding, two bridesmaids are sufficient. In the latter case it is considered complimentary to invite an unmarried sister of both bride and bridegroom to discharge the office. The principal bridesmaid is generally either a sister or a very intimate young friend of the bride. If many bridesmaids are to constitute the bridal cortege, and there be young children on either side of the family, their presence is sometimes considered an ornamental and appropriate addition to the group. In village weddings, amongst the upper classes, little children are often chosen to scatter flowers along the path of the bride as she leaves the church.

It is usual for the bridegroom to present each bridesmaid with some token of the joint regard of himself and bride, in memory of the happy event. Locketts, rings, and bracelets are the most popular emblems of the kind. Of late years, crystal lockets, set with a few plain stones, as turquoise, &c., have been in favour as bridesmaids' gifts. All should be alike, and no difference of cost entailed. The bridegroom gives a bouquet to each bridesmaid, even if he does not present any gift beyond.

Bridesmaids' bouquets are composed of coloured flowers of the season. The bride's bouquet, which is also the gift of the bridegroom, should be composed exclusively of pure white flowers.

Beyond the gifts described, the bridegroom has no expenses whatever to incur in connection with the wedding. The bridesmaids' dresses are purchased at their own cost.

The selection of the bridesmaids' dresses rests with the bride. Her taste is generally guided in the matter by the pecuniary circumstances of the parents of the bridesmaids, since upon the latter the expense necessarily falls. Silks are not considered appropriate for bridesmaids' wear, unless the wearers be past the bloom of youth. Grenadine is a favourite material, but its expensiveness causes it to be little worn except by the wealthy classes. Plain white muslin or tarlatan are the most appropriate, least costly, and generally becoming dresses worn by bridesmaids. Endless varieties of trimmings may be called into use, to vary the costume according to the fashion of the day and season of the year.

Veils are now so generally worn that very few words need be said in their favour. The rule to be observed is whether the bride wears a bonnet or veil, because the bridesmaids invariably follow her example. Veils are both inexpensive and becoming to a young girl, hence their general acceptance by bridesmaids. The veil worn by the bride should cover her face; those worn by the bridesmaids should be fastened at the back of the head, and only fall over the back and shoulders. A coloured wreath of flowers, or bows composed of ribbon to match the trimmings of the dress, completes the head-dress of the bridesmaids. Bridesmaids' veils may be composed of plain tulle, unhemmed, or very soft silk gauze. The bride's veil, if composed of either of the above materials, should be finished with a hem about one inch and a half wide, edged or not with blonde or lace, as may be chosen; lace, however, is generally in favour for brides' wear; and the veil thus chosen forms a useful addition to her wardrobe as a shawl afterwards.

The material of the bride's dress is liable to vary with change of fashion, but white is the usual shade. Elderly people and widows generally wear silver-grey, but young people should wear white. From the plain muslin to the richest *moiré* the range of choice may extend. Low bodices are not in much favour for a bride's dress; the more becoming fashion of high-necked and long-sleeved costume is daily gaining ground. In strictly private weddings greater latitude of choice exists.

If people have carriages of their own, the question of conveyance to church is easily settled. If they are not so situated, the bride's family finds the carriage for the bridesmaids and bride, and the bridegroom finds his own. The carriage which conveys the bridegroom to church is used to convey the bride with himself home to breakfast. Grey horses are generally chosen for bridal occasions. Liverymen usually charge extra for wedding-parties, and it is sometimes found more advantageous to hire the required conveyance for the day instead of for the ceremony only.

In going to church, the bride, with her parents and one bridesmaid, should go in the same carriage, the other bridesmaids having preceded her by some few minutes. The bridegroom goes to the church attended by his "best man," and should be in the vestry some little time before the arrival of the bride. When all the party has assembled, and the officiating clergyman has taken his place at the altar, the wedding-party instantly approach the altar, the bride on her father's arm, or on that of his representative, and the bridesmaids, with the rest of the party, following. Immediately on the clergyman leaving the vestry, the bridegroom, attended by his best man, should follow to the altar, in order to be there somewhat before the bride. The bride takes her place at

the altar to the left of the bridegroom, with her first bridesmaid within reach at her back, and to her she consigns her left-hand glove and bouquet during the ceremony. The bridegroom removes the glove of his right hand. Some clergymen require the bride to raise her veil during the ceremony at the altar, and it is better not to dispute the point.

On leaving the altar the bride takes the left arm of the bridegroom, and proceeds to the vestry. The signing of the register takes place in the vestry, and is usually witnessed by the bridesmaids and others desirous of signing.

The amount of fees paid to the officiating clergyman, clerk, and others is decided rather by the social status of the principal persons than by legal rights. Some people pay the exact fees, and nothing beyond, others give more. The legal fees vary according to the diocese, and should be ascertained beforehand. A copy of the register should always be taken by the bride, for which the usual fee given is half-a-crown extra. All fees and charges are paid by the bridegroom's best man, from money supplied by the bridegroom for the purpose.

In returning from church the bride and bridegroom go unaccompanied in the bridegroom's carriage. They are the first to leave the church. The rest of the party follows in the best order possible, under the confusion which generally ensues in leaving church after a grand wedding.

Wedding favours are found by the bride's family, and are distributed in the vestry immediately after the ceremony. The coachmen and servants are supplied with favours outside the church during the progress of the service.

The final duty of the first bridesmaid consists in sending cards to friends of the wedded couple. The cards should be previously enclosed in envelopes and addressed. Elaborate cards, attached with silver cord and similar bridal associations, are out of fashion. Either a card is sent, bearing the name of both bride and bridegroom on one card; or two cards, with the address of the joint residence on the card of the bride only. Of late years the custom of sending cards has been generally discontinued, and when such is the case, the advertisement inserted in the public journals announcing the marriage conveys the notice of "No cards." The reason is, that certain people may not take offence at not receiving cards.

As a general rule, all persons invited to the wedding-breakfast, when no cards are sent, call at the residence of the bride and bridegroom immediately on their return home from the wedding-tour. If a wedding is designed to be of a quiet nature, without breakfast, the parents of the young couple sometimes send invitations to the church only. The latter is a French fashion that is coming into vogue in England, and is found sufficient notification of good feeling towards old friends and acquaintances. All persons receiving such an invitation are expected to call on the young couple on their return home. Such calls are of course returned, in the order observed in visiting, generally.

Formal "At homes" after marriage are now almost dispensed with. The most simple and generally observed plan is for the bride, or her representative, to inscribe in her own handwriting, on the card, "At home after —" filling in the blank with the date. The ceremony of calling is then observed just as any other morning call might take place.

A succession of entertainments generally follows upon the marriage of a young couple. At all these the bride takes precedence over ladies of superior age and station to herself. Thus, the bride would be escorted to the dinner-table by the host, and the next most distinguished lady present would be assigned to the bridegroom's care.

When the round of visiting, entertainments, &c., is at an end, it becomes the turn of the young couple to receive their friends at home.

HOUSEHOLD CHEMISTRY.—XIX.

STARCH.

STARCH is a white substance obtained from the cellular tissues of plants, which, when pressed between the fingers, feels slightly crystalline, and emits a crackling sound, these characteristics being more marked in some varieties of starch than in others. Starch is a compound of twelve atoms of carbon, and ten atoms each of hydrogen and oxygen. When exposed to the temperature of boiling water it dries, and yields two atoms of water.

When starch is magnified it is found to consist of rounded granules of different shapes; for although starch, from whatever plant it may be obtained, always has the same chemical composition, yet under these circumstances the form of the granules differs greatly. Wheat yields a large quantity of starch; so large that Sir Humphry Davy obtained seventy-five and a half parts of that substance from one hundred parts of a sample of Middlesex wheat which he examined.

Every kind of wheat or other grain may be employed for the manufacture of wheat starch, although the grain may have been so damaged by exposure to the weather or by age as to be unfit for food. To prepare wheat starch the grain may be crushed or ground between rice rollers, and placed in a vessel with sufficient water to moisten it. In a few days—from two to five, according to the temperature—the wheat ferments, and is then mixed with water in a large fermenting-vat, where it is suffered to remain for some weeks. The sediment is then removed, placed in a basket, and a stream of water allowed to pass through it, during which time it has to be continually stirred. The water, as it passes through the basket, removes the starch, forming a milky liquid, while the bran is left behind. This milky fluid is then strained through a fine hair sieve, and collected in large vats, where it is allowed to remain for twenty-four hours, during which time it deposits the starch which it contains.

After this has taken place, some plugs are withdrawn from the side of the vat, and the clear fluid allowed to escape.* If the starch is now examined, it will be found to be covered with a mucilaginous matter, which is to be scraped off. The starch is next mixed with water to purify it, and is then strained through a sieve, finer in its meshes than the one last employed, into another vat of a similar construction to the last. It is allowed to remain in the vat until the starch is again deposited. The slimy, mucilaginous matter on its surface is then to be removed, and it is to be mixed up with more water. The water containing the starch is then to be again passed through a sieve into another vat to settle.

If the starch is intended to be of a blue colour, some small or ultramarine† is added to give it the required tint. If any acetic acid has been formed during the process of manufacture, some soda must be added, to combine with and neutralise it; for if any free acid were allowed to remain in the starch it would have an injurious effect on that substance, and the fabrics on which it was used. This acetic acid, when present, is formed by fermentation out of the elements of the starch. The starch is allowed to remain in this vat for some days, until the layer deposited

becomes firm; it is then, while yet wet, placed in boxes perforated with holes and lined with canvas, so as to allow all the superfluous water to drain away. After remaining until sufficiently hard, it is cut into blocks about half a foot square, dried at a gentle heat, and scraped. These blocks, which consist of pure starch, are then exposed to heat in a stove, during which they fall into the irregular pieces with the forms of which we are all familiar.

The disadvantage attending this process is that the whole of the gluten contained in the wheat, and also some of the starch, are destroyed during the fermentation. To remedy this a process is sometimes employed in which the gluten is dissolved, and the whole of the starch contained in the wheat left unchanged behind. This is done by a solution of one of the caustic alkalis, and will be explained when we treat of rice starch. Starch is also extracted from potatoes, which contain from twenty-four to thirty per cent. of that material.

The potatoes, after being washed, are rasped into a pulp, in an apparatus contrived for that purpose; this pulp is placed on a sieve, and exposed to a current of water, which removes the greater portion of the starch it contains. The water holding the starch in suspension passes through the meshes of the sieve into a vat, where it is allowed to settle and deposit the starch, which is then dried for use.

Potato starch is not much used for starching linen, owing to a property it possesses of attracting moisture from the atmosphere in wet weather. It is, however, employed extensively in the manufacture of dextrine, or British gum, and also, in combination with resin and carbonate of soda, as a size for paper.

Starch is also extracted from rice, by exposing it to the

action of a solution of caustic potash or soda, in a stone-ware or metallic vessel lined inside. The proportion of alkali employed for the solution is two hundred grains to each gallon of water. If more than this amount of alkali were employed, the starch would be dissolved, instead of being left behind in the vessels. After the caustic alkaline solution has acted on the starch for twenty-four hours, it is drawn off by a syphon. The rice left behind is then washed with cold water, dried, and ground into a fine powder. It is then again acted on by more of the solution—one gallon of fluid being used for each pound. During the first twenty-four hours, the rice is well stirred up, but is afterwards allowed to remain at rest for three or four days. The liquid, which is now of a yellowish brown colour, is then removed by a syphon, and sufficient sulphuric acid is added to neutralise the alkali, and precipitate the gluten it previously held in solution, which is then collected and dried. It is used, when mixed with flour, for the manufacture of bread, biscuits, and similar articles of food.

The starch left after the action of the solution is mixed with water, and passed through a sieve into another vessel, where it is allowed to remain at rest until it is entirely deposited. The water is then removed, and the starch is coloured with small and dried for sale. Sometimes, for the sake of cheapness, carbonate of soda or dilute hydrochloric acid is employed for this purpose, instead of the caustic alkalis.

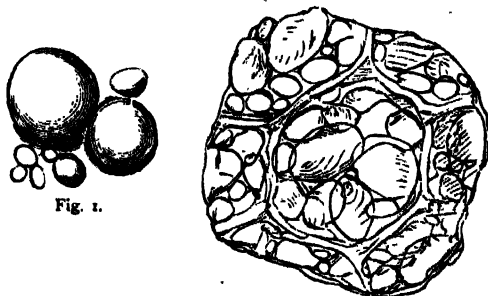


Fig. 1.



Fig. 5.



Fig. 2.



Fig. 4.

GRANULES OF STARCH

The illustration which accompanies this article, Fig 1, represents a few granules of wheat starch very highly magnified, they will be observed to have a round form, and to vary considerably in size. Fig 2 is a representation of potato starch, showing its peculiar shape, and the lines with which it is marked. The manner in which the granules of starch are arranged in the cellular tissue of plants is shown in Fig 3. It represents a very thin slice, or section, of a potato, as it appears when seen through a powerful microscope.

The appearance presented by the starch obtained from oats is shown in Fig 4. In it is shown the manner in which the irregular shaped grains of starch are clustered together. Fig 5 represents starch granules obtained from Indian corn and shows the black irregular spots in the centre by which they are distinguished.

ODDS AND ENDS

A French Way of Removing Ink Spots from Linen—Melt a little fat, and dip the stained portion of the linen into it. When the article is washed, the stain will disappear.

An Easy Way to Clean Silver Articles—Set fire to some what straw, collect the ashes, and, after powdering it, sift it through muslin. Polish the silver plate with a little of it applied to some soft lather.

To Preserve Black Cherries—Boil the cherries in sugar and water until they are reduced to a pulp. Then add more cherries and half their weight of loaf sugar, and continue to boil them until they become of the proper consistence.

COOKERY LXXX

FRENCH DISHES, ETC. (continued from p. 143)

Sucs de Fruits (the Juice of Fruits) obtained by placing them in bags made of some strong and coarse material and subjecting them to the action of a powerful press, may be preserved in bottles when they have been exposed to the heat of boiling water for a quarter of an hour. For ordinary household purposes, it will be found more convenient to preserve the fruit in the state of pulp. This is done by bruising the fruit with a wooden spoon, on a coarse metallic sieve, until all the juice and soft pulp pass through the meshes, and only the skins, seeds, and similar portions are left in the sieve. Then two ounces of crushed loaf sugar are to be added to each pound of pulp, put into bottles, and subjected to heat as directed for the preserved juices. When fruits that contain stones are preserved by this process a few of their kernels are sometimes placed with them in the bottles in which they are preserved.

Haricots Verts (Green Haricots) To preserve these vegetables they should be put into wide mouthed bottles as soon as gathered, and the vessels containing them exposed to the heat of boiling water for an hour.

Petits Pois (Peas)—Put some good sized peas into bottles, which must not be completely filled, and let the vessels remain in boiling water for three quarters of an hour.

Bœuf à l'Ecarlate—Take a piece of the rump of beef, remove any bone that may be attached to it, then lard it well, and sprinkle it with the herbs usually employed for seasoning, chopped up as small as possible, and also a little saltpetre, the quantity required of the latter ingredient being about an ounce to every four or five pounds of meat. Place the beef in a pan with some crushed juniper berries, basil, and thyme, and season it with pepper and a few cloves. Sprinkle over it a mixture of three parts salt and one of moist sugar, six ounces of salt and two ounces of sugar being the quantity required

for five or six pounds of meat. Let the meat remain in the pan for eight days, during which time it must be frequently turned. Then remove the beef, steep it for two hours in cold water, or wash it with hot water; wrap it up in a white cloth, tie it round with string, and simmer it over a slow fire in equal parts of red wine and water, with some carrots, onions, parsnips, parsley, thyme, and chives. After the meat has simmered for five or six hours it will be sufficiently done, and may then be allowed to become cold. Before sending the beef to table, trim it carefully, and pour over it the contents of the vessel in which it was cooked.

Immort d'Aloyau à la Bourgeoise (Minced Beef à la Bourgeoise)—Put in a pan a mixture of flour and butter, brown over the fire, and cook in it some cold roast beef, previously cut up as small as possible. Pour over it equal parts of wine and stock broth, and season with parsley, basil, thyme, salt, pepper, and nutmeg. Boil the whole at a gentle heat until it becomes tender, and add before sending to table a spoonful of the best salad oil.

Tongue de Bœuf à l'Ecarlate (Pickled Tongue)—Take a beef tongue, trim it, soak it in water, and then dry it on a cloth. Afterwards sprinkle over every part of it with powdered saltpetre, and place it in a vessel with basil, thyme, and pepper. Now make a strong pickle with boiling water, and when it has become cold, pour it over the tongue, so as to completely cover it with the fluid. The tongue must be allowed to remain in this pickle for five or six days, the duration of the time depending on the season of the year, as it should remain for a longer time in winter than in summer. When the tongue is pickled, it should be cooked in two pints of water, with basil, thyme, onions, carrots, pepper, and some cloves. Then add enough of the brine in which the tongue was pickled to render the liquid sufficiently salt. The tongue will require to be boiled over a slow fire for two hours and then allowed to cool in the liquid. The tongue is to be put in a dish with the broth in which it was boiled.

Corvells de Bœuf (Beef Brains) Soak the brains in lukewarm water and put them in a stewpan with some slices of bacon, onions, carrots, chives, and parsley. Pour over them equal parts of white wine and stock broth, seasoned with pepper and salt. Then cook the brains at a gentle heat for half an hour, and send them to table with fried parsley.

Corvells à la Sauce Tomato (Brains with Tomato Sauce)—Dress the brains as directed for the preceding dish, then lay them in a plate, and cover them with tomato sauce.

Palais de Bœuf Mariné (Palate of Beef Pickled)—Soak a palate of beef in hot water, until the membrane that covers it can be readily scraped off. Cut the meat into slices, and pickle it in vinegar, seasoned with pepper, salt, bay leaves, and cloves. A little garlic may also be added if the flavour is agreeable. Then prepare a thin, cream like paste, with flour, white wine, salad oil, yolks of eggs, and a little salt, and dip the pieces into it so as to cover them, and fry them in a pan to a good colour.

Palais de Bœuf Grillé (Palate of Beef Grilled)—Soak some palate of beef, cooked and cut up as before directed, in olive oil and the juice of a lemon, seasoned with mushrooms, chives, parsley, salt, and pepper, and then cover with bread-crumbs. Grill the slices, and send them to table with *sauce piquante*.

Queues de Mouton au Ris (Sheep's Tails with Rice)—Place some slices of bacon at the bottom of a stewpan, together with some sheep's tails; add also some sliced onions, carrots, parsley, thyme, or any other herbs that may be preferred. Season with salt, pepper, and cloves, and pour over them some stock broth; place the cover on the pan, and cook with a slow fire. Now take some well

washed rice, steep it in stock broth until it swells; add it to the contents of the stewpan, and simmer the whole with a gentle heat. When sent to table, the bottom of the dish should be covered with some of the rice; then the sheep's tails are placed on it, and the rest of the rice poured over it.

Cervelles de Mouton (Sheep's Brains) are dressed in the manner directed for *cervelles de veau*. They are not, however, equal in flavour to the latter dish.

CRAYONS.

THE best French crayons for drawing on paper are manufactured with the purest pipeclay, which has been previously ground as fine as possible, and well washed, to remove all extraneous matters; this is then made into a paste with a solution of shellac in rectified spirits, some turpentine and colouring matter being afterwards added. The proportions usually employed for this purpose are twelve parts pipeclay, six parts shellac, four parts of spirits of wine, two parts of turpentine, and twelve of colour. Sometimes the crayons are made into a paste with the mucilage of gum arabic in water, instead of the solution of shellac; other makers prefer to employ a mucilage prepared with tragacanth for this purpose. Occasionally the paste is mixed up with ale, barley-water, milk (either pure or skimmed), or sugar-candy.

The colours employed in the manufacture of crayons are then generally used for painting in oil. They require to be reduced to the finest possible state of division before being used, as on this much of the excellence of a crayon depends. The colours employed may either be used in a pure state, or rubbed up with sufficient chalk to produce the required tint. The following colours are used in the manufacture of crayons:—For the reds, vermilion, various lakes, red chalk (hematite), red-lead, and red oxide of iron are employed; the blues are made with Prussian blue, verditer, indigo, &c., yellows, with Naples yellow, yellow ochre, orange and lemon chrome, &c. King's yellow and osmium are sometimes directed to be used, but as they are very poisonous, from the quantity of arsenic they contain, their employment cannot be recommended. Greens are made by a mixture of blues and yellows, the particular tint being determined by the relative proportions of the colours used—this, if the yellow colour preponderates, a bright green is obtained; but if the blue is in excess, a dark green. Brown crayons are usually prepared with brown ochre, and also with raw or burnt umber, and *terra di Sienna*; sometimes ivory-black or lake is added to produce particular tints. White crayons are made with chalk, and sometimes carbonate of lead; black, with lamp-black, ivory-black, or black-lead.

When crayons are manufactured on a large scale, the composition is placed in a cylinder perforated at one end with round holes the size of a crayon. To the other extremity of the cylinder a piston is fitted, which, descending with considerable force, not only forces out all the air-bubbles that may be entangled in the mass, but also causes it to issue through the openings in long cylindrical pieces. They are then dried, and afterwards divided into portions of the proper length.

The ordinary method employed where only a small quantity of crayons is required to be made is to compress the mass as strongly as possible, to expel all air-bubbles, and then roll it out into the proper shape. The newly-made crayons are then placed on blotting-paper till perfectly hard; their surface is then rubbed with very fine glass-paper, to remove a kind of bloom which forms on them while being dried, and they are then ready for use.

A useful kind of black crayon for drawing or writing on paper may be made out of a piece of well-burnt charcoal, which has been broken into suitable size: the pieces of charcoal

are then boiled in melting beeswax for an hour. The marks made by a crayon of this description may be rendered permanent by warming the back of the paper on which it has been used, so as to cause the particles of charcoal to adhere to its surface.

Lithographic crayons, for writing on stone, consist chiefly of hard soap, white wax, and lampblack, melted together for about half an hour, care being taken in the manufacture to stir them continually while melting. The pan containing it is then removed from the fire, the composition allowed to cool slowly, and is then, while still liquid, poured into moulds. A good form for this purpose consists of three drachms of white wax, three drachms and a half of hard soap prepared with tallow, and half a drachm of finely powdered lampblack.

For the purpose of making this composition harder, shellac is sometimes added, as in the following receipt—Shellac, one quarter of an ounce, the same quantity of hard soap, half an ounce of white wax, and one drachm of lampblack. In making these crayons the shellac is first melted, then the other ingredients are added. Occasionally spermaceti is employed in this preparation, in which case equal parts of that substance, white wax, and hard soap are used, a sufficient quantity of lampblack to give it the required colour being added.

Owing to the quickness with which labels become detached when exposed in damp situations, as in a wine-cellar, it is often advisable to write on the bottle itself. Crayons for this purpose may be prepared by melting two drachms of yellow beeswax, with three drachms of tallow and half an ounce of spermaceti, and then adding six drachms of red lead and one of carbonate of potash (pearlash), and sufficient lampblack to colour it. The materials should be kept at a moderate heat, only sufficient to render them fluid, for about half an hour, and are to be continually stirred during that time. The composition is then to be poured into a narrow glass tube, closed by a cork at one end, and the tube is then plunged into a vessel of cold water.

To Prepare Pumice-paper for Drawing on with Crayons—Paper of this kind is made by coating the surface with a mixture of very finely divided pumice-stone powder with starch. Another way to prepare it consists in painting over the surface of the paper with gelatine or starch, and then dusting over it some pumice-stone reduced to a very fine powder. It may also be prepared by rubbing over the face of ordinary paper with a piece of smooth pumice stone, and afterwards carefully removing every particle of loose powder by means of a roll of white paper passed gently over its surface.

Fluid for Fixing Crayon Drawings—Add three-quarters of an ounce of isinglass to two and a half ounces of distilled vinegar. Let them remain for twenty-four hours; then pour in a pint of hot water, and keep the liquid hot until the isinglass is dissolved. The fluid is then to be filtered through white blotting-paper, and placed in a stoppered bottle with the same quantity of rectified spirits of wine. To use this liquid the drawing should be held horizontally by the four corners, with the surface which has been drawn on downwards, care being taken that it is not allowed to touch anything. The fixing-fluid is then painted over the back of the drawing with a very soft, flat, camel's-hair brush, sufficient liquid being used to allow it to penetrate through the substance of the paper and render the crayon-marks moist. While doing this, great care must be taken not to apply more of the liquid to some parts of the paper than to the rest. If this is not attended to there is danger of the drawing appearing stained when finished. The back of the drawing is then to be again gone over with the brush, taking care to use less fluid than was previously done. When this is finished the drawing is to be turned, and laid on some flat surface to dry.

HOUSEHOLD AMUSEMENTS. -XXXVI.

PHOTOGRAPHY.

Of all the arts successfully adopted by amateurs, photography is, perhaps, the most pleasing in its study and gratifying in its results. Its difficulties, when met by the exercise of ordinary care and intelligence, will be found comparatively few and unimportant, while in overcoming them the student obtains a ready insight into some of the most deeply interesting principles of optics and chemistry.

There are two principal processes now in vogue, the wet collodion, and the modern gelatine dry process, both of which will receive attention. The first subject to be considered, however, is apparatus.

The Camera.—A large variety of cameras are in use. The simplest consists of a small chamber, with a sliding body to enable us to lengthen it (Fig. 1). When the lens is screwed into its place in front, and covered, and when the dark slide, Fig. 2, is also in its place, and closed, this camera must exclude light perfectly, or it will be of very little use. In Fig. 1, at A, you will observe what is called the "focussing screen;" this consists of a square of very finely ground glass, framed so as to slide into the grooves prepared for its reception. When this is removed, and the dark slide, Fig. 2, is placed in the same grooves, a glass plate, put into the slide, should be in exactly the same plane as that previously occupied by the ground glass. This also is an indispensable requirement. Referring again to Fig. 2, you will notice the outer door, B. This is opened to put the plate on which the photograph is obtained in its place, in which it is kept by a spring, and the door is shut and fastened with buttons. When the plate is in the camera, ready for exposure to the image which the lens will throw upon it, the shutter, A, is drawn up.

For out-door work a portable camera, constructed so as to fold up, and with the sides made of leather or cloth like a concertina, is used, and as they answer all purposes better than the wooden ones, we should recommend the purchase of one at first. These are generally supplied with three double dark slides to hold two dry plates each.

Camera Stands.—To put the camera into a position ready for work, we require a stand. A very large variety of camera stands have been from time to time introduced, but some of the best and simplest are also the oldest. One of these is shown in Fig. 3. This is called a tripod, and being firm and portable, can be used for either in-door or out-door work.

Lenses.—Like the cameras and stands, lenses are of various kinds, but they are classed broadly under two heads, namely, landscape and portrait. When mounted ready for use, the appearance of a portrait lens is shown in Fig. 4. The cap or cover which prevents light entering through its glasses is marked B; and C shows the flange which is fastened upon the camera for the lens to be screwed into; while A indicates the screw which, when

turned, acts upon the rack, and so pushes forward or draws back the lenses for the purpose of focussing. Fig. 6 shows us the section of a landscape lens, and Fig. 5 that of a portrait lens. To these diagrams we must return again when we are more fully explaining their nature and the principles which govern their management.

For all-round work perhaps the best lenses for an amateur are what are known as symmetrical, or rectilinear. These consist of two glasses exactly alike, mounted face to face, and although in taking portraits with them a somewhat longer exposure is required than with a portrait lens, yet they give better definition, and will render architectural subjects without distortion. They are also very useful for general landscape work and for copying.

Baths.—For wet collodion work a bath is required to hold a solution of nitrate of silver, and for this the very best material is glass. Baths are sold made of gutta-

percha and of glazed porcelain, but for the nitrate of silver solution those made of glass are undoubtedly preferable. The form of bath most commonly used is that drawn in Fig. 7. It is sometimes used upright, as there shown, and sometimes aslant, as in Fig. 13, the latter position being the most commonly adopted. It is as well to have a wooden case made for the bath, with a support to keep it at the required angle, as shown at E.

A flat porcelain dish (Fig. 8) is required in both processes to hold a solution of sodium hyposulphite or thiosulphate for fixing. For the gelatine process a flat ebonite or papier-maché tray is used to develop the negatives in, and a porcelain dish to hold a saturated

solution of alum for hardening the film.

Dipper.—The piece of glass marked A (Fig. 7) is known as the dipper; it receives the plate B, and is used to lower it into the silver bath, as shown at D, Fig. 13.

The Operating or Dark Room.—For this either a small room or large cupboard may be used; or what is known as a dark tent, of the kind shown in Fig. 9, may be purchased or manufactured. Some of the dealers have little dark rooms for sale of a very compact and portable kind, fitted complete and ready for immediate use. The disadvantage of working in a small operating chamber arises from the fumes of your chemicals, which in warm weather, at least, are very unpleasant, if not seriously unhealthy. When a small room is made use of, it should be so ventilated that the air is admitted without the light. The dark room must have a window of two thicknesses of paper stained with aurine and magenta, mounted between two plates of glass, which only admits those rays of light that have least chemical power, as we shall presently explain. If you use a spare room, keep everything out of it that is likely to hold dust, for it is important that your dark chamber should be as free as possible from this great foe to successful photography. Shelves for bottles, a few hooks, a common deal table, placed under the window with a large tray on it to hold the sops, and

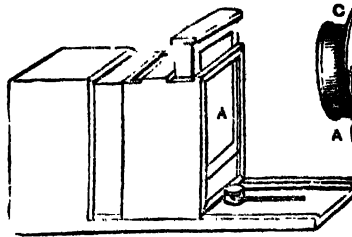


Fig. 1.

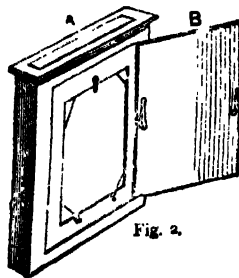


Fig. 2.

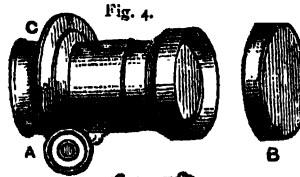


Fig. 4.



Fig. 3.

a wash-hand stand, with basin, soap, &c., will be required. If the room has no window, an ordinary lamp, screened with two folds of the paper, may be used to work by.

Glass Funnels.—Two of these will suffice, one large and one small.

Graduate Glass Measures (Fig. 10).—These glasses are provided with spouts, and are divided by lines indicating the quantities of solution they will hold, with signs appended, as explained in the following table :

- 1 pint contains 20 ounces, 3 xx.
- $\frac{3}{4}$, or one ounce, contains 8 drachms, 3 viij
- $\frac{1}{2}$, or 1 drachm, contains 60 minims or drops.

As a great nicety is sometimes needed in measuring out the required proportions of different liquids, these glasses

plates of various sizes, three or more of these boxes will be required ; but if your camera is a small one, made for plates of one size, of course one such box will suffice.

Glass Plates.—These plates may be procured from the dealers, cut to the sizes required. They vary in quality and consequently in price, but the kind known as flatted crown will be found quite good enough, although many prefer them cut from plate-glass. In choosing plates, select such as are free from scratches, specks, and other flaws, and grind their sharp edges down with coarse emery-cloth, or with a piece of the composition sold by the dealers for that purpose. The plates most commonly in use are those ranging in size from $8\frac{1}{2}$ by $6\frac{1}{2}$ inches, to $4\frac{1}{2}$ by $3\frac{1}{2}$ inches. These sizes are known as whole-plate (the largest) and quarter-plate.

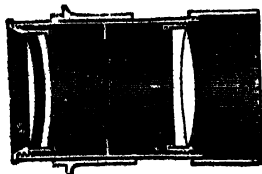


Fig. 5.

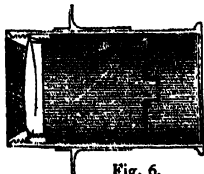


Fig. 6.

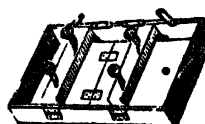


Fig. 12.



Fig. 8.

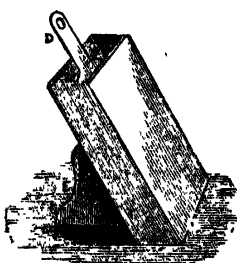


Fig. 13.

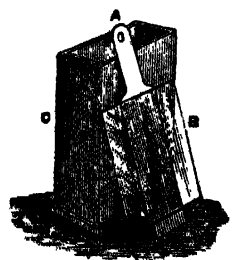


Fig. 7.

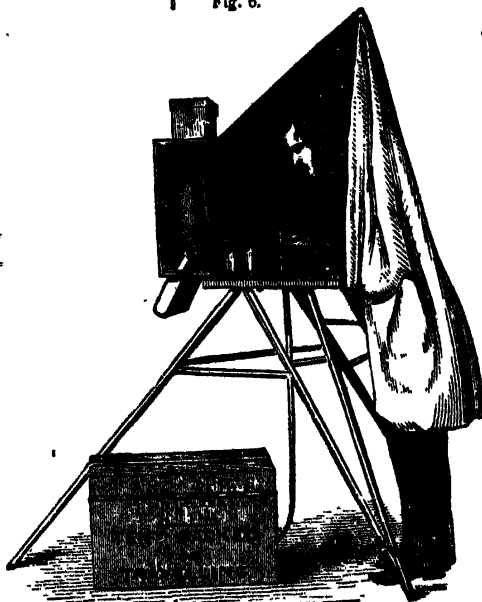


Fig. 9.

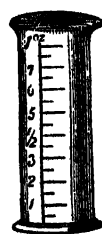


Fig. 10.

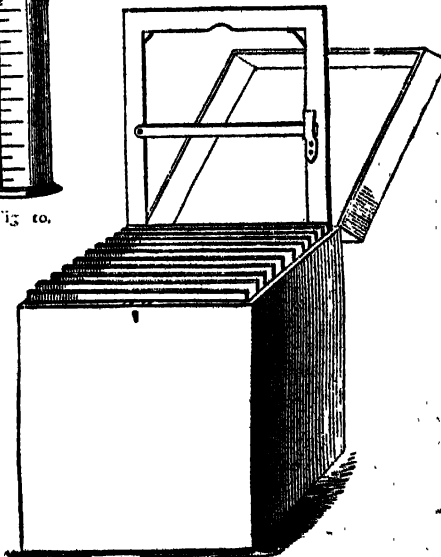


Fig. 11.

will be found very useful. It will be as well to procure one 10 ounce and one 2 drachm measure.

A Few Wide and Narrow-mouthed Bottles, of various sizes, one or two with stoppers, and one of the kind called a "Winchester quart," may be obtained. How many of these bottles, and the kind you may require, will largely depend upon the direction your practice takes, and may be gleaned from our next paper, in which we shall treat of the materials.

A Few Glass Stirring Rods.

A Piece of Black Velvet, about one yard square, for focussing.

Remaining Apparatus.—Supposing you have the lens, camera, stand, baths, and dark room, you will still require for the collodion process the following apparatus :—

Plate Boxes (Fig. 11).—These are made of deal, and supplied with grooves inside for the reception of the plates when they are cleaned, in order to preserve them from dust and other impurities, a clean plate being the first and most important essential to success, as will be more clearly shown. If you have a large camera, taking

The **Argentometer** is required for testing your silver bath from time to time, in order to keep it at one uniform strength.

A Collodion Bottle.—Either an ordinary bottle with a good cork may be used, or a bottle sold for the purpose, with a spouted removable mouth, covered with an airtight glass top. As it is important to keep the mouth of the collodion bottle scrupulously clean, a cork is better than a stopper, as it wipes out the neck every time it is removed.

Plate-Holder.—In working large plates a plate-holder of some sort will be necessary. Those known as pneumatic are perhaps as good as any. They work on much the same principle as the boys "sucker." One form consists of a short tube with a bell-shaped mouth at one end and a ball at the other, made entirely of india-rubber. The ball is squeezed, and the orifice applied to the back of the plate. On now releasing the ball the pressure of the atmosphere causes the plate and the holder to adhere closely together.

Printing Frame.—A shallow box in which sensitive

paper is exposed to light behind a negative. The back is in two pieces hinged together, so that one half of the print may be raised and examined without disturbing the other half. (See Fig. 12.)

At the commencement we informed the reader that there were at the present day two principal methods of obtaining a negative, viz., by the collodion and the gelatine process. We will now devote a few lines to the consideration of their various advantages and disadvantages. Gelatine plates require only a fraction of the exposure necessary with collodion, and this property renders instantaneous photography, which always has a great charm for the amateur, comparatively easy. These plates can also be purchased packed in boxes of one dozen ready for use; and they may, if necessary, be developed many months after exposure. Therefore, in working with gelatine dry plates, the necessity for carrying a dark tent, chemicals, &c., into the field is entirely dispensed with; all that is essential being the lens, tripod stand, focussing cloth, and a camera, with a few double dark slides to hold the plates. Three is the number usually supplied with a camera, and this allows six plates to be taken, which will be as many as the ordinary amateur is likely to want for one day's outing.

Again, a dark room is not an absolute necessity for making pictures by this process, as the dark slides can be filled and the plates developed at night by the light of a lamp constructed for the purpose, which can be bought of any dealer in photographic apparatus for a few shillings.

So much for the advantages of dry plates. On the other hand, with collodion it is possible, by skilfully managing the development, to give greater intensity to and bring into prominence one part of the negative, and to subdue others, if necessary, thereby tending to produce a more artistic result. Again, as the plates must be developed on the spot, if an error has been made in the exposure, and the photograph fails, it can be remedied by taking another; whereas with gelatine you may possibly not find until you are 200 miles or so away, that the picture which perhaps you risked your life to secure is over or under-exposed, and consequently a failure. This is aggravating, to put it mildly. There are also many faults to which gelatine films are liable, such as green fog, blistering, frilling, &c. On the whole, however, the advantages far preponderate for average work, and the whole process is so much simpler and so easily conducted, that for general work it is fast elbowing collodion negatives out of the field.

PEPPER.

BLACK, WHITE, LONG, AND CAYENNE.

BLACK PEPPER is the berry of a climbing plant known as *Piper nigrum*, a native of the East Indies, and is cultivated in the West Indies. The berries grow in long, thin clusters, and are collected from the plant while yet unripe, when they are of a green tint, and before they turn red. The plants require to be of at least four years' growth before the berries can be gathered for use. Care has to be taken not to gather them too young, otherwise they are apt to fall to powder when dry.

The berries, when gathered, are placed on mats to dry, during which process they become black. Black pepper, from the very hot taste it possesses, is much employed for culinary purposes. This is probably due to the presence of a peculiar soft resinous matter it contains. When new and in good condition, it also possesses a peculiar odour, which is owing to the essential oil contained in its composition.

In small quantities—especially in hot climates, and in

cases where the diet principally consists of raw vegetables—its moderate use will be found to assist digestion; but if taken in excess, it is injurious to the liver. In large quantities it may even destroy life, both by exciting inflammation of the stomach, and also by its action on the nervous system.

Many varieties of black pepper are met with in commerce—the best, which is imported from Malabar, is of a brownish black colour. The ordinary black pepper sold in shops, and which is the cheapest kind, comes from Sumatra, and is valued in proportion to its weight, the heavy kind, known as "shot pepper," being the most esteemed.

Black pepper is covered with a rind, or outer bark, and when this is removed is known as white pepper. This is done by steeping the berries in salt water, exposing to the sun, for a few days, until the rind becomes softened and bursts. While still moist the berries are then rubbed, so as to entirely remove this covering. By undergoing this process the pepper loses much of its pungent odour and taste, and thus becomes milder, and more fitted for domestic use.

White pepper is smoother than black, with a better surface, more especially as only the soundest and best berries are selected for its preparation; and varies in colour from whitish grey to yellow.

Sometimes white pepper is manufactured in England, by merely rubbing off the outer rind in a mill, in the same manner as pearl barley is prepared. It is also occasionally made from Penang pepper, by bleaching it with chlorine.

When ground, pepper is often adulterated with other materials, such as rice, linseed meal, wheat-flour, and similar articles.

Long pepper, the dried fruit of the *Piper longum*, is extensively cultivated in Bengal, and is much used all over India. This variety of pepper is of a brownish colour inclining to grey. It varies in length from an inch to an inch and a half, and is of the diameter of a large goose-quill. It is of a milder taste than black or white pepper, but is not much used in England.

The best cayenne pepper consists of the pods of the *Capsicum frutescens* ground into a fine powder. Cayenne pepper, but of inferior quality, both as regards its strength and flavour, being less aromatic, is also obtained from the *Capsicum annuum*, and other species.

The pods of the *Capsicum frutescens* are commonly known as "bird pepper." They are of an orange-red colour, are usually one inch in length, and contain about a dozen flattish seeds, of a shape something resembling the kidney.

The seed-vessels, or pods, of the *Capsicum annuum* are usually sold under the name of chilies. They are much larger than those previously described, some of them being from two to three inches long, and about one inch wide. They are divided according to their shape into long, short, and heart-shaped pods.

Cayenne pepper owes its peculiar properties to the presence of an active principle named *capsicine*, and which may be extracted from it by alcohol and ether. This pepper should be carefully kept from the action of the light, otherwise it loses the fine red colour it ought to possess. It is sometimes adulterated with various substances, such as the husks of mustard seed, rice, turmeric, salt, red-lead, red oxide of iron, brick-dust, ochre, &c. The salt is added to increase its weight and also to render its colour a brighter red. A considerable quantity of salt may be added to cayenne pepper without its being detected by the taste, owing to the hot flavour of the cayenne concealing that of the salt.

This adulteration may be detected by exposing the cayenne pepper on a sheet of white paper for some time to the action of the atmosphere. If the pepper is then found to become of a deeper tint and moisture, it proves that salt

has been added. The cause why cayenne pepper adulterated with salt attracts moisture from the atmosphere is due to the chloride of magnesium, or calcium it contains.

The red-lead and red oxide of iron are added not only to increase its weight, but also to prevent its losing colour when exposed to light.

ODDS AND ENDS.

Facts about Barley.—If barley is deprived of the husk that covers it, and is rounded in a mill, it is known as pearl barley. When pearl barley is boiled in water, and strained, it forms the beverage called barley-water. Sometimes barley is ground into flour; it is then known as oatmeal. Barley is much employed in the manufacture of malt. For this purpose the malt is well wetted with water, piled up into a heap, and allowed to remain for a considerable time. After a certain period the barley begins to germinate, and the rudiments of the future root and stem sprout forth from the grain. At the same time the starch contained in the barley is changed into a kind of gum, and afterwards into sugar. The grain is now dried in kilns, by which the vitality of the young plant is destroyed, and the barley converted into malt, the colour of the malt depending on the degree of heat to which the grain has been subjected. When a very moderate degree of heat is employed it is of a light colour, and is known as light dried malt, which is used for pale ales and similar fluids. But if a high temperature is employed, the malt is of a dark colour, and can only be used for porter and stout.

Red Manifold Paper for obtaining Copies of Embroidery, or Other Patterns.—Rub a sheet of thin white paper with a smooth piece of red chalk, until every portion of its surface has been gone over. Afterwards rub the loose powder which has become detached from the chalk into the substance of the paper with a piece of fine linen, and dust off any portions of powder that may still remain on its surface. To use this paper, it should be laid with the prepared side downwards on the sheet of white paper on which it is intended for the copy to appear. The pattern is then laid on it, and its outline carefully gone over with a blunt point, which must press gently on it, so as to transfer the red powder from the manifold paper to the surface on which it rests. If this is carefully done, with the requisite degree of pressure, when the manifold paper is removed, a perfect impression of every line traced will be found on the paper on which it rested. If wished, a number of copies can be obtained by only once going over the pattern, provided as many sheets of manifold and white paper are arranged as there are copies desired.

To Purify Neat's-foot Oil.—This may be done by mixing the oil with an equal quantity of water, and placing them in a pan over the fire to simmer. Stir the oil continually till it is entirely mixed with the water, then remove the vessel from the fire, and allow it to cool. When quite cold remove all the oil, which now floats on the surface, and again subject it to the same process with more water. If it is desired to employ this oil for the preparation of cold cream, it may be perfumed by using orange-flower or rose water, instead of ordinary water.

Oyster Catchup, for Flavoured Dishes when Oysters are out of Season.—Boil half a pint by measure of shelled oysters, previously beat up in a mortar into a paste, in the same quantity of sherry wine, together with a drachm of mace, half a drachm of pepper, and half an ounce of salt. When ready, strain off the fluid, add a teaspoonful of brandy, and preserve the liquid in well-closed bottles.

To Take Copies of Monumental Brasses.—Place on the brass or other substance to be copied, a sheet of paper (the full size) that is used for lining paper by paper-hangers, and cover very well, although there is some made on

purpose. Then with a shoemaker's heel-ball, which is a composition of tallow, wax, and lamp-black, rub the paper. Where the brass or other substance is solid, the colour of the ball will adhere to the paper, and give the pattern; and with careful rubbing a perfect fac-simile may be obtained. There is a rubber composed of a yellow metallic powder, mixed with the same adhesive substances as the black rubber, which, when applied to dark paper, gives the exact appearance of the original brass. The figure appears to be the brass itself, and the paper the stone slab in which the brass is embedded. A mixture of black-lead and linseed oil, applied with a wash-leather rubber, produces a good effect where great sharpness is required. This process is useful for taking patterns of any kind, where they are raised above the surface.

METHOD OF MAKING CLOTH AND LEATHER WATERPROOF.

THE minute spaces between the fibres of the yarn, either of cloth, silk, or cotton goods, cause them to be pervious to water; therefore, these minute channels in cloth and the pores of leather must be closed up in order to make them waterproof.

Many have been the means adopted and invented for the purpose, and some are quite simple enough to be adopted at home.

In waterproofing factories the process is carried on in rather a different manner to the house process. Rock alum, whiting, and water are the ingredients for producing a solution of alumine, in which the fabric is soaked; it is then passed through a solution of warm yellow soap water, to fix the alum in the interstices of the cloth, and enable it to resist the action of water, and so render the fabric waterproof. Then the cloth is washed and pressed. The proportions of ingredients for this process are as follows:—15 lbs. of materials; 1½ lb. of rock alum; 1½ lb. of common whiting; and 3 gallons of water. Soap solution, temperature 100° Fahr.:—3 lbs. of yellow soap, 30 gallons of water, to 50 lbs. weight of cloth.

Another method is by immersion in a preparation composed of 2 oz. of pulverised alum dissolved in 1 pint of distilled water; and 1 oz. of dry white-lead rubbed down in 1 pint of water. The two solutions are mixed and allowed to settle; the liquor constitutes the required agent.

Another method by immersion:—1 oz. of dry white-lead rubbed down in half a pint of water; 1 oz. of pounded alum dissolved in half a pint of water; mix; and add 2 fluid drachms of acetic acid, and allow to settle.

When the cloth has been immersed in the liquor resulting from either of the above solutions, it is passed through a solution of quicklime, and a third time through a solution of Irish moss, which acts as a mucilage.

Waterproofing in the household may be easily managed thus:—Boil half an ounce of Russian isinglass in a pint of soft water till dissolved; dissolve an ounce of alum in a quart of water; dissolve a quarter of an ounce of white soap in a pint of water; strain these solutions separately through linen, and then mix them all together. Heat the liquid till it simmers, and apply it with a brush to the wrong side of the cloth on a flat table. When dry, brush the cloth lightly with water. This process renders the cloth impervious to water but not to air, and is therefore a healthy manner of rendering articles waterproof.

To Render Leather Boots Waterproof.—Melt over a slow fire, one quart of boiled linseed oil; one pound of mutton suet; three-quarters of a pound of yellow bees wax; and half a pound of common resin; or smaller quantities in these proportions. With this mixture saturate the leather of new boots and shoes, having previously made them rather warm.

DECORATIVE BRONZES.

AMATEUR METHODS OF REPRODUCING AND IMITATING THEM

BRONZE has always been a favourite material in which to produce decorative objects, and among the primitive races it was employed for that purpose long before the introduction of iron. The excavations at Nineveh have furnished us with many interesting examples, and among the classical peoples of Greece, Etruria, and Rome, this art was carried to a degree of perfection to which we have vainly endeavoured to attain in modern times. Although in all ages decorative articles in this material have been much prized for domestic use, they have never perhaps, been so much sought, or so easily within the reach of all, as at the present time. This is to a great extent owing to the facility with which we are able to procure such things from France, where the manufacture is much more largely carried on, and statuettes and ornaments of pleasing design are made a great deal more cheaply than in England, partly also to the invention of the electrotyping process, which gives remarkable facilities for reproducing beautiful and intricate designs, that would have been difficult, and sometimes even impossible of execution, by the more ancient method of casting.

The composition of the metal used for ornamental casting in bronze, is an alloy of copper and tin, and much less than copper alone. It is necessary that it should be so mixed as to be capable of flowing readily, when melted, into all parts of the mould; it should be hard, that it may be able to resist blows, and other accidental injuries, and of such a nature as to acquire, through oxidation, that green surface which is so much admired in antique works, and which is known as *Verde Antique*. The chemical composition of bronze is the cause of great importance.

The art of bronze casting is by no means an easy one, owing to the difficulty which would be found by an inexperienced workman in making the liquid metal flow equally into all parts of the mould. It is, therefore, one altogether unsuited for amateur practice. But the formation of such articles in bronze as can be produced by the electrotyping process is, with some little practice, easily accomplished, and is so interesting as to have been almost from the first application of its principles a favourite amusement for amateurs. There are also methods by which articles in other substances than bronze can readily, and at little cost, be made to resemble that material, and to present the beautiful effects peculiar to it.

Electrotyping consists in depositing a thin body of metal upon a previously prepared mould, by means of electricity, and this is capable of reproducing, even to the most minute details, the design of the object from which the mould was taken. In the hands of the amateur, copies of medals, medallions, and small reliefs, are favourite subjects, for it is difficult for any but the professional worker in bronze, to join together articles which it is necessary to electrotype in more pieces than one. Any person who has sufficient knowledge of the art of modelling to produce medallion portraits, will find that by electrotyping he can readily reproduce them in metal, in an indestructible form, and those who have studied our lessons on Casting from Nature may make electrotyping available for reproducing the beautiful forms of natural foliage.

It was about the year 1839 that electrotyping was first practised, although the principle has been recognised from almost the beginning of the century: at which time a

paper was sent by Volta to the Royal Society, announcing his discovery of the voltaic pile. "This owes its origin to the fact that when a voltaic current is passed through a metallic solution, decomposition takes place; the metal in a reduced form attaches itself to the negative pole or electrode, while the acid or alkali goes to the positive pole."

In 1801, Wollaston said, "If a piece of silver, in connection with a more positive metal, be put into a solution of copper, the silver is coated over with the copper, which coating will stand the operation of burnishing." In 1805 Brugnatelli gilded completely "two large silver medals by bringing them, by means of a steel wire, into communication with the negative pole of a voltaic pile, and dipping them one after the other immersed in ammoniuret of gold, newly made and well saturated."

The process has since then been much simplified by Professor Daniell's invention of the constant battery, in which copper is being continually reduced upon the negative plate. In 1837 a valuable discovery was made by Thomas Spencer, of Liverpool, who dropped some varnish by accident upon a slip of copper which he was about to use as a negative plate. He found that no copper was deposited on the varnish, and from this he developed the method of coating copper objects with varnish or wax,

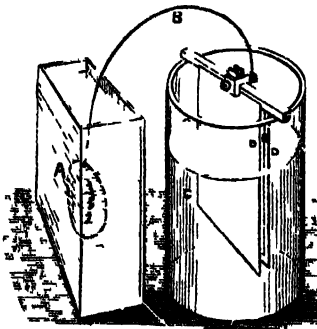
cutting a design through it to the metal, and then depositing upon the bare copper thus leaving, when the remaining varnish was cleared away, a design standing in relief above the original surface. A further improvement was made by Robert Murray, who discovered that by coating a non-metallic mould with plumbago or black lead, a sufficient substitute might be provided for the metallic moulds previously necessary.

The cheapest battery, and the one most in use among amateur electrotypists, is one contrived by Mr. Alfred Smee, F.R.S. In this a plate of platinumised silver (A) is placed between two plates of zinc (B), and the three are suspended in a jar or cell (C), containing a solution of dilute sulphuric acid, by a cross-bar of wood. As it is essential to keep the plates parallel, a wooden frame extends round the edge of the silver plate; the cross-bar has two clamps on the top, one connected with the silver plate, and the other with the two zinc ones. From this battery a wire (D) passes to the mould to be covered, and to this its other extremity is attached, and the mould (A) is immersed in a vessel containing a solution of sulphate of copper, or of the precious metals, if the article is to be gilt or silvered instead of electrotyped in bronze. The illustration represents this battery.

Electrotyping on a small scale, and with copper only, may be practised at a very trifling cost—a few pence being sufficient to buy the materials and apparatus really necessary, but to produce anything large enough, and good enough, for household decorative purposes, rather more expense must be incurred.

A small object, such as a coin, may be copied with no more costly appliances than a short length of copper wire with a piece of zinc soldered to one of its ends, a marmalade jar to serve as a bath, in which to place the dissolved sulphate of copper or blue stone, and to immerse the mould at the end of the wire farthest from the zinc, and a tube of brown paper to place in the centre of the jar, and in which to put dilute sulphuric acid, and plunge the zinc.

Moulds for electrotyping may either be metallic, or be made from various non-metallic substances; the former are made of a fusible metal composed as follows:—bismuth, 8 ounces; tin, 2 ounces; lead, 5 ounces, melted



SMEE'S BATTERY

in a clean iron ladle, and poured out in drops on a stone slab; they should afterwards be re-melted to ensure perfect mixing. This composition melts at a temperature below the boiling point.

Supposing that a mould has to be made from one side of a medal, the latter should first be brushed with sweet oil, and carefully wiped with cotton-wool; and a slip of cardboard or tin should be bound round it in such a manner that it may project about a quarter of an inch beyond its face. The molten metal should be poured out on a tray, and, just before it solidifies, the medal to be copied should be pressed upon it, face downwards, and left till the alloy sets, when, if the slip is removed, the two will easily separate. Non-metallic moulds are made of various substances, such as gutta-percha, wax, sulphur, &c. Gutta-percha should be softened before use in boiling water; and for greater strength it is better to encircle the object to be moulded with a tin slip. The softened gutta-percha should be forced down upon the medal till it stands above the rim, and then put in a common copying press, or anything of the same nature, and subjected to pressure till cold. For wax moulds melt wax in a pipkin over a slow fire, and stir into it about one sixteenth of its bulk of flake-white; it should be melted two or three times before being used. The medal, encircled with its rim, should be tilted on one side, and the wax poured, just before it settles, on the lowest part, and the whole brought to a level at that moment when the wax will flow evenly, and no air-bubbles will arise. The slip of card or tin should, in this case, be removed the moment the wax has set. Non-metallic moulds require to be converted into conductors of electricity by blackleading, and the black-lead must be applied till no whitish spots appear when the surface is breathed upon. Previous to commencing operations, the battery should be got ready, and, before plunging the mould in the metallic solution, care must be taken that the black lead extends completely to the juncture with the wire, and if the communication is complete, when the battery is set in action, a thin film of metal will be deposited upon the blacklead or metallic surface, and this may be increased to any desired thickness. The mould should then be taken out, and, if it is a metallic one, the electrolyte may be detached by gently raising the edges with a braidawl, if non-metallic, lay the whole face downwards, and press the edges of the electrolyte till the mould can be pulled from it. The latter can be used again and again, but if of non-conducting material, it will require re-blackleading each time it is used. All moulds require to be made with very great care, as the slightest imperfection, even the dull surface or a finger mark, will be reproduced in the electrolyte, so delicate is the process. Sometimes it is desirable to copy figures or other ornaments in high relief, which are undercut, and from which a mould cannot therefore be taken in the above manner. For these a composition must be used consisting of glue and water in nearly equal proportions, to which, when melted, is added about a third of their bulk in starch. This will make, when boiled and poured hot over the surface, an elastic mould which can be pulled, without breaking, over any projections.

When the electrolyte is taken from the mould, it will be of a light copper colour, and one of the following methods must be employed to give it the appearance of bronze according to the colour and tone desired. By putting four or five drops of nitric acid in a wine-glass of water, a preparation may be obtained which will give a brown bronze colour. A green bronze may be given by steeping the objects for some days in a strong solution of salt and water; a very dark bronze by washing with a solution of sulphate of ammonia drying at a gentle heat, and polishing with a very hard brush.

If instead of bronze, it is desired to deposit silver or gold upon the mould, it may be done by using, for silver,

cyanide of silver dissolved in cyanide of potassium; and for gold, that metal has to be dissolved in nitro-muriatic acid to form chloride of gold; this is treated with calcined magnesia, whereby the gold is precipitated as an oxide, which is boiled in strong nitric acid to dissolve any remaining magnesia, and well washed. Being dissolved in cyanide of potassium, this gives cyanide of gold and potassium, the first being the form in which the gold is required. In using either of these cyanide solutions, a temperature of 130° is required, and the solution of sulphate of copper will be found to deposit most freely at a moderately high degree of heat.

Electro-plating, or gilding upon objects in the baser metals, may also be performed with this apparatus, by attaching them instead of the mould to the wire of the battery, and immersing them in the bath; but before so treating them they must be thoroughly cleansed by boiling in alkaline ley, to remove grease; and to remove oxide, they should be dipped and washed in dilute nitric acid, and rubbed with a hard brush and Isle of Wight sand. On removal from the metallic bath, the articles should be at once dried, and polished with a brush and whiting, and afterwards burnished with a steel or agate burnisher, if they are intended to be bright; but if of a dead surface they should at once be dipped in boiling distilled water.

Bronzing—Statuettes, medallions, vases, and other objects in plaster of Paris, may be made to resemble bronze by first rendering the plaster non-absorbent with drying linseed oil, and then painting it with a varnish made by grinding waste gold leaf with honey or gum water, or with one made of mosaic gold, which consists of an alloy of copper and zinc ground up with six parts of bone ash. Another method is by first painting the article, after it has been rendered non-absorbent, of a dark colour, made of Prussian blue, spruce ochre, and verditer, ground in oil; before this becomes quite dry, bronze powder, which is to be bought of several different shades and colours, should be dusted on those more prominent parts which may be supposed to have worn bright. Plaster casts may also be made to resemble bronze to a great extent by brushing them over with graphite, which is brilliant black lead. The above methods will, with little modification, be found to answer equally well upon paper, cardboard, and wood. For paper or cardboard, the material should, however, be ground with white of egg, or spirit varnish, and afterwards be brushed or burnished when dry.

The appearance of bronze may be given to brass castings by first thoroughly cleansing with a file or sand-paper, or by boiling in a strong ley; and the green colour obtained by treating with vinegar, or dilute nitric acid, or sal-ammoniac, or sal-ammoniac and vinegar together, with a little common salt, and afterwards lacquering. To make the lacquer, take one ounce of turmeric, two drachms of annotta, and two drachms of saffron, and put in a pint of alcohol, shake this frequently during a week, and strain off into a clean bottle, then add three ounces of clean seed-lac, and shake occasionally during a fortnight. In using, lay on evenly with a soft brush. Much of the effect of lacquering is due to light reflected through the varnish from the bright surface beneath.

TO STAIN WOOD YELLOW.—Place a quarter of an ounce of powdered turmeric with five ounces of rectified spirits of wine in a stoppered bottle; allow it to stand for about a week in a warm place, during which time it must be occasionally shaken, and then filter the clear solution. When this fluid is painted over the surface of new wood, it produces a deep yellow stain. If the colour produced is deeper than desired, it may be made of a lighter tint by the addition of more spirits of wine to the mixture.

THE TOILETTE.—XXVI.

WASHES FOR CLEANING THE HAIR.

Rosemary Hair-wash.—Dissolve two drachms of pearlsh (carbonate of potash) in one pint of camphor mixture. Then add two ounces of rectified spirits of wine in which twenty drops of the oil of rosemary have been previously dissolved.

Camphor Mixture.—Break some camphor into pieces, tie it up in a muslin bag, and put it in a bottle full of water, and allow it to remain for a considerable time, until the water smells strongly of camphor, then pour off the clear solution.

Bay-leaf Hair-wash. Take half an ounce of borax, and the same quantity of bicarbonate of ammonia, dissolve in one pint of rose water, or common water, if the other cannot be obtained, and filter the solution through white blotting paper, if required. To this add two fluid ounces of the tincture of bay leaves.

Wash of Camphor and Borax is prepared by dissolving half an ounce of borax in one pint of camphor mixture.

Glycerine Wash for the Hair. A good preparation for cleansing the hair may be made by dissolving half an ounce of borax and two drachms of carbonate of ammonia in two pints of water. To this is added one drachm of camphor, dissolved in two ounces of rectified spirits of wine, and one ounce of glycerine.

Sassafras Hair-wash is prepared by boiling half an ounce of sassafras in one pint of water, and adding one drachm of carbonate of potash (pearlish) and two or three drachms of rectified spirits of wine, scented with a few drops of otto of roses, or some other essential oil.

Vanilla Wash for the Hair.—Camphor mixture, scented with the extracts of vanilla, orange, rose, or geranium and elder, or rosemary.

Esprit de Savon (Essence of Soap).—Cut into thin slices an ounce and a half of white soap, and place it in a pint of rectified spirits of wine, with one drachm of carbonate of potash and half that quantity of powdered gum benzoin. When the ingredients are dissolved, which will be in about a week, if the vessel containing them has been kept in a warm place, filter the liquid for use, and preserve it in a well stoppered bottle.

Philadome, which is an elegant and fragrant pomade for the hair, is prepared by dissolving an ounce and a half of white wax in half a pound of the essence obtained by *enfleurage* from flowers. To make this pomade the wax is first melted at a gentle heat, and the essence is added, and mixed with it by continued stirring until cold. In cold weather one-third less of wax must be employed.

Crystallized Oil is a similar preparation, spermaceti being substituted for wax. To make it, half an ounce of melting spermaceti is added to five ounces of any essence prepared by *enfleurage* that may be preferred. The materials are then to be kept at a gentle heat, until the spermaceti is entirely dissolved. When this compound is allowed to cool gradually it assumes the crystalline appearance from which it derives its name.

TEXTILE FABRICS IN DOMESTIC USE.—IV.

WOOLLEN FABRICS AND CARPETS.

THE very useful and almost indispensable woollen fabric known as flannel is so familiar to all as to need but little description here. Flannels are simply woven in the same manner as already described in these articles in the production of cloth, and although there are many varieties of the fabric, the process of manufacture is the same in nearly all cases. Although flannel should be, and is usually supposed to be, a woollen fabric, it is often very largely adulterated with cotton, and this, in connection with the exceedingly loose weaving, is the reason why

some varieties are to be purchased at so cheap a rate. It should be remembered, however, that an admixture of these materials is neither so warm nor so serviceable as a genuine flannel, which should always be secured, even at an extra cost. Welsh flannel is generally considered the best, as combining at once the important qualities of thickness, softness, and durability in an eminent degree. Many other varieties, however, are now manufactured, which are very nearly, if not quite, as excellent in quality, and which will often be found suitable for various purposes, while they may be procured at a much less cost. In judging of the quality of flannel, there are two important points which should be considered. The first of these is the closeness with which the threads forming the texture are woven together. The difference in this is easily discerned if two pieces of good and bad quality are held before a strong light. It will be observed that in one case the texture is loose and open, while that of the better quality is almost impervious to light. It is evident that this variety contains a much larger quantity of material, and that it is consequently very much warmer and more durable. The second point claiming attention is that of the softness of the material. This chiefly depends upon its composition, and the least suspicion of hardness or harshness to the touch will indicate the presence of cotton, and consequently the sample may at once be pronounced of inferior quality. Money is often wasted in paying a higher price for flannel of a whitish colour. Where this light colour is the accompaniment of finer quality, it does not matter, but it should be remembered that most flannels become of similar tone and colour after having been washed a few times, and, therefore, except for particular purposes, when whiteness is really essential, extra expenditure on this account alone is merely waste. The same rules may be applied to the selection of the variously-figured flannels now in such general use for shirtings and other purposes, as we have given for the plain fabrics; but, as in these cases there are greater facilities for the mixture of cotton with the wool, particular attention should be given to the softness of the material.

Having obtained a good flannel, considerable care is required in its treatment while in use, if the utmost durability and comfortable wear are to be obtained. In washing this, and, in fact, all woollen fabrics, certain precautions must be taken, of the softest and best material will become hardened and deteriorated. When first wetted, a good lather should be made with fine soap and water, only just warm, and no soda or washing-powder should be added on any account whatever. The temperature of the washing water may afterwards be raised, but in no case should it be allowed to reach anything like boiling point; nor should any woollen fabric be boiled in the copper. In the case of coloured flannels, still more care is requisite, and the lower the temperature of the water in which they can be thoroughly cleansed, the better and safer it will be.

Blankets are woven loosely in a similar manner to flannels, but in these, the peculiar, long, and somewhat more tufty nap is raised, after weaving, by means of a roller, upon the surface of which a number of brass pins are placed. These pins catch and draw out the fibres of wool until the surface texture peculiar to blankets is produced, and it is to this process that this important variety of textile fabric owes its properties of softness and warmth. Although blankets are made in many parts of the country, those manufactured at Witney, in Oxfordshire, are the most highly esteemed; and this superiority has been attributed to certain properties of the water of the river Windrush, in which they are scoured. As a general rule, only the larger sizes of blanket are made of the longest and finest wool, the smaller sizes being of an inferior and shorter quality. In the selection of blankets,

the same rules may be applied as those just given for flannel. The length of the pile, and the closeness of the woven threads, are both important matters, especially the latter. In some cases the pile is very artfully drawn over the woven texture, so as to partly conceal its openness and coarseness; but if the texture be examined, by holding it up to the light, its quality may be at once determined. Like flannel, blankets are often largely adulterated with cotton, and the defect may be detected in the same manner as before described. In fact, a blanket ought not to be harsh, or even stiff, in the slightest degree; and if it is, it should be at once rejected as likely to be of a very unserviceable quality. The length of the wool employed is also a good test of quality, and this may be easily ascertained by drawing out a few fibres from the surface. If these fibres draw out of a good length, and from the body of the fabric, the blanket is probably a good one; but if they are short, and break off at the surface of the woven part, it is an evidence of the use of wool of too short a quality to render good service. The weight of a blanket is also some guide to its quality, for the simple reason that a closely-wrought fabric is heavier than one more loose and open in texture; and it will be found that the extra closeness of the weaving is generally accompanied by additional thickness of the whole. A caution may here be added as to the very "cheap" blankets which are sometimes to be seen in shop windows. It is said that everything is made for a purpose, and these are made to sell, and not for wear or utility. Really good blankets are expensive; but one good one will not only last out several of inferior quality, but will be much more warm and comfortable in use, and so be infinitely cheaper in the end.

Like all woollen fabrics, blankets require some care in use; the same precautions which we have given for flannels in the process of washing are applicable to them. It is not advisable to wring them out after cleansing, except in a very moderate degree, but they should be suspended and allowed to drain. The reason for this is that, in the process of wringing, the loose pile would be compressed unequally, and would remain flat upon the woven threads, and produce hard patches and an uneven appearance. Blankets are particularly liable to the attacks of the moth, and it is usual to place small bags containing camphor between them, and in the drawers in which they are stored, in order to prevent mischief from this source. It is also of the first importance that they should be kept well aired and perfectly dry. In the summer time it is an excellent plan to hang them in the sun at least once a week for an hour or two at a time. If used with care, blankets are very durable. A really good pair ought to last nearly a lifetime; but they are often treated very improperly, and therefore we have mentioned matters in this paper which are probably well known to many prudent housewives, although they are frequently neglected or perfectly ignored by servants and laundresses.

The woollen manufacture commonly known as worsted consists of the longer kind of wool, called combing-wool, which is twisted into a somewhat hard thread before weaving; and the manufacture of certain fabrics of this material is as important in many respects as that of the softer variety of woollen goods already described. It is unnecessary here to enter into details respecting the process of manufacture; suffice it to say, that some of the variegated cloths called tartans are made of this material, which is exceedingly durable. Tapestries, stockings, and under-clothing are also frequently made of worsted, and from Scotland and various other places shawls and hosiery of the utmost beauty are commonly exported. The thinner worsted fabrics are called shalloons, and the nap or down which usually covers the surface of the cloth is in these removed by passing

the woven material over a heated plate of iron. In the case of worsted textures, the same rules apply as those previously given for the selection of the ordinary woollen fabrics, and this is also the case with respect to their treatment when in use.

Besides the fabrics already mentioned, carpets of various descriptions are manufactured, either partially or entirely of wool or worsted. Carpets are now so generally in use that a few words as to their qualities and properties are really necessary in order to complete this part of our subject. The two most common varieties of carpet, and those which are most frequently employed in the house, are known as Brussels and Kidderminster. Of these the Kidderminster carpets are the cheapest, and, if properly used, they will last for years. These carpets are made chiefly of worsted, and one of their chief peculiarities is that they are somewhat alike on both sides of the fabric; sufficiently so, in fact, as to allow of their being turned when one side is slightly worn or soiled. They are of a kind of double texture, and, although the form of the pattern is the same on both sides, the colours are exactly reversed. Thus, if the pattern were a black cross on a white ground on the right side of the carpet, it would be a white one on a black ground on the reverse. These carpets are mostly so arranged, as to pattern and colour, that the back, or wrong side of the material, is at least of a presentable appearance, and this gives them an advantage which is not possessed by any other fabric used for the same purpose. Although neither so durable nor elegant, either in beauty of colour or design, as Brussels carpet, they are, if of good quality, sufficient for the covering of bedrooms, and other places where the utmost wear and beauty is not required. In purchasing a carpet of this description, the selection of a material of close texture and considerable softness is important. Beyond these two points no advice need be given, except that, unless a fair price be paid the material will probably be largely adulterated with cotton and various other fibres which lend themselves readily to the purpose, and which require some skill in order that they may be detected.

Far more elegant, as well as more durable, are the carpets known as Brussels. These fabrics are a compound of linen and worsted, the former being used for the backing, or framework, which supports the latter, which, of course is on the front or right side of the carpet. It would be too tedious to explain here the process of manufacture, which is somewhat complicated; but we may observe that, independently of the cost of material, the labour involved in weaving complicated patterns is such as to preclude the possibility of its being produced at a very cheap rate. But, although a good Brussels carpet is expensive in the first instance, it is well nigh indestructible if properly used; the combination of worsted, and flax, or linen, offering as it does not only the resistance to wear of two very durable substances, but of the two combined in the best possible way for the purpose. The upper surface of the carpet consists of a series of loops of worsted, which are secured to the linen cloth underneath. These loops yield to the pressure of the foot, and bend backwards and forwards for years without much perceptible wearing away. Even when the first surface is worn off the carpet, the stout linen backing, with the fragments of the remaining worsted, form a good, warm, and comfortable covering for a floor, and a half worn out Brussels carpet is much to be preferred to the showy felts which are frequently met with.

In all respects, therefore, carpets of this sort are to be recommended when an elegant and rich effect is required at a moderate cost. In selecting a carpet, some care and judgment are required both as to colour and quality. As a rule, the brighter colours are the least permanent, and it is generally considered that drabs and greys are the hardest and most durable tints. The texture of the

fabric demands some consideration. The backing should not be too coarse, and the threads closely woven together. Upon the face the threads of worsted forming the pattern should be of moderate length, and so closely placed as to prevent any part of the backing being visible. The surface of a good Brussels carpet is not very hard, and any great stiffness of the loops will indicate the presence of some fibre which is not what it should be—namely, wool. No particular precautions are needed in the use of Brussels carpets, except that as they are expensive, and often very delicate in colour, care should be taken to keep them as clean as possible. It is an excellent plan, and one which should always be adopted when a good carpet is laid down—to entirely cover the floor with the wide, coarse brown paper commonly known as carpet paper, before the carpet itself is laid. It frequently happens that the joints between the flooring boards are somewhat open, and were this is the case, the carpet will often fade entirely along the line unless this precaution is adopted. It should also be ascertained that the floor is perfectly even, and that there are no projecting edges, for if there are, the carpet will wear unequally, and will speedily become shabby in these portions.

The particularly rich and beautiful carpet known as Wilton or velvet pile is also woollen fabric, and is similar to Brussels, except that, instead of the loops which form the upper surface being left entire, they are cut in precisely the same manner as we have already described in the article on velvet. The ends of the wool are by these means left standing at right angles with the surface of the carpet, and this imparts to these fabrics the velvety appearance which is their chief charm. Like Brussels carpets, these velvet piles are very durable, although not quite perhaps to so great an extent, and the same rules as we have already given for the selection and use of the former are also equally applicable to the latter. The pile should be close and firm, and if this be the case, and a fair price be paid, there need be no difficulty in securing a really serviceable article.

In concluding this part of our subject, we may remark that one reason why carpets often wear out with exceeding rapidity is because they are not cleansed either often or thoroughly enough. A moment's consideration will show that when a fabric like a carpet becomes charged with particles of rough, gritty matter, every footstep upon it grinds the fibres one against the other and against the dirt. By this action, not only the surface, but also the interior of the carpet is destroyed, and thus a kind of double wear is going on at the same time. Of course it is not to be understood that carpets require moving every day or week, but they should never be allowed to become thoroughly impregnated with dirt and dust, as they frequently are, through the neglect of domestic servants.

Having thus mentioned some of the more important woollen textile fabrics, we will, in our next paper, pass on to those in linen.

PERFUMERY

IV

Odour Sauvée sometimes called *esprit de sauvée* is thus prepared.—Take eight drops each of the essential oils of cloves, neroli, and bergamot, forty-five drops of the essence of musk, two ounces and a half of the essence of cassie, the same quantity of essence of jasmine, five drachms each of the essence of tuberose, rose water, and rectified spirit of wine. Mix them in a stoppered bottle, and shake the vessel frequently, until the scents are perfectly combined.

This well-known preparation, *Lavender Water*, may be obtained by distilling lavender tops when in flower with spirit. The following is an excellent receipt for this purpose.—Lavender flowers, two pounds and a half, digested

in two pints of rectified spirit of wine and one pint of water for a week. Then add five and a half ounces of common salt, dissolved in one pint of water, and distil rapidly by means of steam, or a salt water bath. When the distillation is finished, add to the perfume one and a quarter drachms of oil of bergamot, and thirty drops of the essence of ambergris.

Another excellent form consists of a quarter of an ounce of the finest English oil of lavender, one drachm each of the essence of musk and essence of ambergris, half a drachm of the best oil of bergamot, which should have been recently prepared, dissolved in half a pint of rectified spirit of wine. This is a very fragrant lavender water, but it may be improved by adding a few ounces of water, and distilling at a gentle heat.

The lavender water, however, commonly sold in shops, consists only of half a drachm of the essential oil of lavender to half a pint of proof spirit, or forty-five drops of oil to half a pint of rectified spirit. A very fragrant lavender water may be prepared by dissolving a quarter of an ounce of oil of lavender (English) in a quarter of a pint of rectified spirit of wine, one drachm of the essence of ambergris, and two ounces and a half of the finest eau de Cologne being afterwards added.

Lau de Lavande de Millefleurs consists of eight drops of the essence of ambergris, the same quantity of essence of cassie, and twenty-three drops of the oil of cloves, mixed with half a pint of the best lavender water.

Lavender water enters into the composition of *Eau de Millefleurs*. This perfume consists of half an ounce of the strongest lavender water, and the same quantity of essence of jasmine, forty-five drops of oil of bergamot, fifteen drops of the essence royal, and fourteen drops of oil of cassie, two drops of the oil of rhodium, six drops each of the oils of cloves and sassafras, and half a pint of rectified spirit. When the essential oils and essences are dissolved in the spirit, four ounces of orange-flower water are to be added. When an ounce of lavender water is added to half that quantity of a solution of ammonia it forms the *eau de lavande ammoniacale*, or *ammoniacal lavender water*. This is a very pungent liquid, which is employed to relieve headache, instead of ordinary smelling-salts. Ammoniacal lavender water may also be prepared by dissolving two drachms of the oil of lavender in seven ounces and a half of the solution of ammonia.

Perfumed Powder for Sachets.—Take sixteen parts of lavender flowers, eight parts of red rose petals, and the same quantity of orris-root, *Calamus aromaticus*, and coriander seeds, together with one part each of cloves and mace. These materials should be reduced to a coarse powder, and then mixed together. Sometimes a very small quantity of musk and oil of rhodium, or else a little oil of bitter almonds (free from prussic acid) is added. The powder is then to be sewn up in bags, and placed in drawers to perfume them.

Perfumed Vinegar.—Vinegar for toilette purposes may be scented with various perfumes. *Vinaigre distillé de lavande* is made with half a pound of lavender tops in flower, macerated in half a gallon of strong vinegar for seven days. The vinegar and lavender are then placed in a still, and three pints of vinegar are distilled over it. A similar preparation, but of inferior perfume, is obtained by dissolving a quarter of an ounce of the essential oil of English lavender in two pints of vinegar.

Vinaigre Rosat, or *Rose Vinegar*, is prepared by macerating a quarter of a pound of red rose petals in three pints of strong vinegar. The vinegar is to be allowed to act on the roses for a week, during which time they must be frequently stirred, and then strained. The vinegar then should be scented with fresh rose petals, or other essences, until it becomes sufficiently perfumed.

HOUSEHOLD DECORATIVE ART.—LIIL. POTICHOMANIE.

THE beautifully-painted vases and other decorative articles, of Indian and Chinese workmanship, which adorn the homes of the wealthy, are generally very expensive, not unfrequently costing hundreds of pounds each. Indeed, Frederick the Great of Prussia is recorded to have received from one of his brother potentates a whole regiment of guards in exchange for a single pair of porcelain vases. But articles almost, sometimes quite, equal in effect, though, of course, without the merit of being genuine, may be made by any person, with the outlay of a little labour and good taste, from jars or other articles of plain glass, by aid of the art of potichomanie.

The practice of this pretty accomplishment was, some few years ago exceedingly fashionable and general; recently it has been but little employed; but as it possesses sufficient merits to render it again certain of assuming popularity, and as those who possess true taste ought not to allow themselves to be wholly controlled by the vagaries of fashion, we shall endeavour briefly, but clearly and practically, to explain the process to our readers.

During many years past, a number of methods have been attempted by which to imitate painted porcelain, in a simple and inexpensive manner. One was to cement flowers and other devices, cut out of coloured chintz, upon vases of turned wood, or of common unglazed earthenware, to colour the intermediate ground, to add rims and other decorations of gilding, and to cover the whole with a coating of varnish. Another plan was to affix similar ornaments to the inner side of a glass vase, and afterwards to fill it with sand or chalk. These systems were, however, very imperfect, and, although some good effects were to be produced by them, they could scarcely be considered as satisfactory reproductions of china vases, their dissimilarity of material being easily perceptible at a considerable distance. The more modern method of cementing flowers and ornaments printed upon paper within the glass, covering them and the intermediate spaces with a grounding colour, and securing the whole with varnish, is, however, a great advance on the older and ruder plans, and produces an imitation of porcelain which, if well done, will bear a much closer scrutiny. Vases have generally been the subjects on which the art has chiefly been employed, but it has sometimes been applied to other

articles, such as screens, the tops of stands for lamps, tea-urns, &c., or even the tops of tables.

Materials.—The principal materials required will be the articles of plain glass to be decorated, and the sheets of coloured prints with which to ornament them. These are to be obtained at fancy shops, as are also bottles of porcelain colour of various tints, for laying in the ground, and proper varnish, thinning, and vellum size, as well as gold-leaf and gilding varnish; some strong liquid gum is also necessary. The only tools needed are a few camel-hair pencils of different sizes, and a pair of sharp, finely-pointed scissors. The jars, or vases, for decoration are

made of plain, ordinary glass. Small ones in a variety of shapes are to be bought for a few pence, and large ones, of from two to three feet in height, need not cost more than seven or eight shillings each. At the present time, when potichomanie is not generally practised, and there may in some places be a difficulty in procuring the coloured prints specially prepared for the art, it may be well to mention that those sold for use in *décalcomanie* are, when the patterns are appropriate, equally applicable; and, indeed, any coloured prints or water-colour drawings of suitable design may also be used for the purpose. The prepared grounding colour, which is sold in the form of a powder, in bottles at one shilling each, may easily be made by the operator himself; any mineral pigment may be employed to give the requisite tint (for which a brown or a light green is usually best), and a body added to it by grinding it with a considerable quantity of whiting or flake-white. The body is necessary to give the requisite opacity. Ordinary size



VASE WITH POTICHOMANIE ORNAMENTS.

will be found to answer the purpose of vellum size, if that cannot be easily obtained, whilst most common gum-varnishes may be made to serve as substitutes for those specially sold for use in this art.

Mode of Procedure.—Before beginning to ornament the glass, care should be taken that its inner surface is perfectly clean, and, to ensure this it should be carefully wiped out with a dry wash-leather. The ornaments are to be cut out from the sheets of designs with scissors, and it is necessary to the neatness and beauty of the work that every portion of the white paper on which they are printed should be removed. The designs will then have to be saturated with water. If the paper is thick, they should be soaked for a short time; but if tolerably thin, it will be sufficient to lay them face downwards, and to damp them on the back with a clean wet sponge. They

must then be gone over upon the coloured side with a camel-hair pencil dipped in liquid gum, and this must be done neatly, so that no spot be left untouched, and the coat be of uniform thickness. They have next to be stuck upon the glass, and well pressed against it with a pad of soft rag, care being taken that no spaces containing air-bubbles are left between. Sometimes a difficulty may be found in making every part adhere completely, and a little more gum will then have to be inserted between the print and the glass. Usually those jars which have necks sufficiently wide to admit the hand are chosen for decoration; and in treating a narrow-necked vase, the difficulty becomes very much greater—indeed, upon such we should scarcely advise a beginner to try his hand. Prints may, however, be fixed in narrow-necked vases by using a piece of thin stick, to the end of which is fixed a small pad of cotton wool, covered with wash-leather, and this will form a tolerably good substitute for the hand.

The prints being fixed in their places, they will have to be sized to prevent the grounding colour penetrating through them. Two coatings of size should be applied. The first should be made of one part size and three parts boiling water, and used when nearly cold; it may then be brushed over the back of the paper with a camel-hair pencil. When this is dry, apply a second and stronger coating, made with about equal proportions of size and water. As the size is transparent, it will not matter if some of it remains upon the glass between the paper ornaments, for when the grounding colour is subsequently laid on, it will not show. Indeed, time is saved and the work looks equally well if the size is spread over the whole surface, paper ornaments and glass alike.

The work is now prepared for the application of the grounding colour, which must be laid on evenly and firmly with a broad and flat camel-hair brush. As one coating is not sufficient to give complete opacity, it is better, when that first applied has become dry, to go over it with rather weak size, then to lay on a second coating of colour, and, after that, to ensure brilliancy, to size again, time for drying being allowed between each operation.

The whole has now to be secured by varnishing; this must not be done till the last sizing has become perfectly dry. For ordinary work, two coats of varnish will be sufficient; but if the vase be intended to hold water, three or four coats must be laid on. These will resist its action for some time, but there is always danger of their being ultimately softened and destroyed by the moisture. It is therefore better, if the potichomanie jar be intended to serve as a receptacle for flowers, &c., that an inner vessel for water should be provided.

A good finish can often be given to the lips and rims of vases by gilding. For this purpose gold-leaf should be used, which may be purchased in small books. The surface to be gilt should first be sized with a solution of about half an ounce of isinglass in a pint of water. The gold is, in fact, attached to the glass by what is known as the water-gilding process, and has to be applied at once, while the size is wet, which is the reverse of oil-gilding, in which the size is allowed to become all but dry before the gold-leaf is laid upon it. The book of gold-leaf should be divided with a sharp knife, into strips of the required width, and the gold may be taken from it and placed upon the glass with the little instrument known as a gilder's tip, which is a kind of broad brush, having a single row of hairs only. To secure a sufficient thickness of gold, and to obviate any danger of imperfections, it is well, when the first coating of gilding has become dry, to re-size it and go through the entire operation a second time. When it has become thoroughly dry, gilding-varnish

must be applied, with a soft camel-hair or a sable pencil, to those parts of the gold *only* which are intended to remain; and when this has had time to dry, the superfluous gold can easily be removed with a piece of wet cotton wool. Gilding is an operation much more difficult than any other part of the process of potichomanie; great care and delicacy is required in laying the gold smoothly and evenly, for the leaf is so light that the slightest breath of air is enough to disturb its evenness, and to prevent its being laid upon the glass properly.

Style and Design.—As potichomanie is essentially an imitation of porcelain, the style of ornament to be adopted in it is, of course, that which is most perfect in the genuine ware. European china is, as regards design and colour, far inferior for the purpose to that of the Eastern nations, and Chinese and Japanese designs are therefore to be preferred for reproduction. Prints are to be obtained by means of which imitations of Dresden, Sèvres, and English wares may be made, but these are not very successful, and prints with Asiatic patterns will be found far more available in point of taste. The designs shown in our illustration as applied may, with various others, be procured at the shops, and good taste is necessary on the part of the operator in choosing his ornaments, as well as in laying them out according to the most appropriate and effective arrangement.

DOMESTIC MEDICINE.—LI.

SCURVY (*Scorbutus*).

THIS is a very interesting and instructive disease, for the reason that we know more about the cause of it, and the remedy for it, than of almost any other disease that can be mentioned. There is a material difference between the popular idea of scurvy and the medical idea of it. According to popular notions, all unseemly and unwholesome eruptions about the face or skin generally are apt to be considered scurvy. But in medical language the word has a very different and definite meaning, and refers to a peculiar group of symptoms caused by a certain diet. We shall best explain the matter by a description of the symptoms, the causes, and the cure.

Symptoms.—The most noticeable symptoms of scurvy are to be found in the dirty, sallow complexion of the skin in the disease; in a bleeding, spongy, swollen condition of the gums; in great weakness and debility of muscles, and marked depression of the spirits, amounting to actual despondency. There are in most cases a number of bruised-looking spots on different parts of the body, and at certain parts, as on the thighs, at the flexure of the elbows, there is apt to be a swelling which pits on pressure.

In addition to these symptoms there is often in the later stages of the disease, considerable diarrhoea, which adds greatly to the exhaustion of the patient. In bad cases, breathlessness is a very common symptom; it may be accompanied with a slight amount of feverishness and dull pain in the side, and often is associated with a great tendency to faintness. Patients are, indeed, so very apt to faint, that it was a rule, at the *Dreadnought* hospital ship, in receiving bad cases of scurvy, not to allow the patients to walk up the steps of the ship, but to hoist them up in a horizontal position. The most essential and characteristic symptoms are, the debility and despondency, the bruised, or, as doctors say, the *ecchymosed*, spots, the bleeding, spongy, swollen gums, sometimes projecting out of the mouth, but at other times not noticed by the patient. Sometimes the eyes present a very remarkable appearance, which is thus described by an able medical writer:—"The integument around one, or both orbits is puffed up into a bruise-coloured swelling. The conjunctiva covering

the sclerotic—the membrane covering the eye—is humid, and of a brilliant red colour throughout, about the eighth of an inch in thickness or elevation above the cornea, leaving the cornea at the bottom of a circular trench or well. The sight is sometimes affected in this peculiar way—patients can see by daylight, or by the light of a very near candle, but as soon as they pass from the light they become absolutely blind, and require to be led about. The tendency to faintness we have already noticed.

The skin is soft and easily disorganised. Slight pressure on it suffices to make a bruise, or even a wound, which gives rise to an ulcer, with hard, thick, shining edges. The surface of this ulcer is apt to bleed freely.

Causes.—It is not only the symptoms of this disease which are so well marked, but the cause of it is equally definite and characteristic. The essential cause may be stated, in a sentence, to be the prolonged absence from the diet of the patient of a proper quantity of fresh vegetables. Other forms of debility and poorness of the body may follow upon the absence of other articles of diet; but the want of proper vegetable nutriment alone will produce the above group of symptoms. This conclusion may be stated very positively, for it is confirmed by a greater amount of plain and palpable evidence than almost any other conclusion in the domain of medical science.

Place any body of men in circumstances in which they are entirely without fresh vegetable food for a length of time, and they will begin to manifest scorbutic symptoms; they will become pale, weak, dirty in complexion, depressed in spirits, the gums will become spongy, and bruised spots will appear at various parts of the body. Some or all of these symptoms will surely be forthcoming. The diet in other respects may be very good. They may even have plenty of beef and bread, as in the case of certain railway excavators in the time of the potato famine. There were many bad cases, some even fatal, amongst those men. Yet they breakfasted off beefsteaks or mutton chops, and bread. The dinner comprised bread, boiled beef or bacon, pea soup or broth, and suet-puddings containing currants. Animal food was taken in large quantities—but *there were no potatoes or fresh vegetables.*

The same kind of evidence is adduced in a description of the occurrence of the disease in Ireland. In four-fifths of the cases reported, the patients had been living on bread and tea and coffee when attacked; the others had been using grains of various kinds, or grains and flesh or fish; but in no single instance could it be discovered that green vegetables or potatoes had formed a part of their regular dietary.

The frequency of this disease amongst sailors is a matter of notoriety. And this circumstance has led to the opinion that the disease was caused by salt meat, but the above case of the railway excavators, and many similar cases show that the disease may appear in those who live on fresh meat, if fresh vegetables are not also supplied. In the case of sailors living on salt meat, the disease is kept completely away by a regular administration of fresh vegetables, or of the juice of lemon. It is true, however, that scurvy will appear sooner in men who are—without fresh vegetables—living on salt meat, than on fresh meat. The process of salting deprives the meat of some of its nutritive properties, and also renders it less digestible and assimilable.

Space would fail us to tell of the occurrence of scurvy in armies living without supplies of proper vegetable food. In the Crimean war our troops suffered severely because it was no part of the ordinary duty of the commissariat to supply vegetables, which did not constitute a part of the soldiers' rations. The French troops suffered still more severely. In their case, too, fresh vegetables formed no part of their rations. The Turkish forces are supposed to have suffered still more than the French, but particular statistics are not forthcoming.

Here, then, is a disease clearly traced to a definite defect in diet. It shows us the immense importance of vegetable diet, and what valuable articles of diet common vegetables, such as potatoes and greens, are. Like air, water, and other very common and cheap necessities, they are not appreciated till they are withdrawn. The disease seems to consist in an alteration of the composition of the blood, making it unfit to nourish the body, especially unfit to nourish the heart and the muscles.

Treatment.—We need spend little time in describing the treatment of scurvy. There are few diseases that respond so quickly and satisfactorily to proper treatment as this. The disease is, in fact, a form of starvation, depending on the withholding of a certain element of diet, and the treatment consists simply in supplying "food convenient," that is to say, vegetable juices, such as lemon or lime juices; and fresh fruits and vegetables, such as oranges, potatoes, salads, watercresses, pickles, broccoli, and cabbage. Fresh animal food, too, should be given. The spirits should be kept up, and fresh air should be supplied. The Board of Trade issued the following suggestions for the information of shipowners and shipmasters, some of which have since been made compulsory:—

"Every ship on a long voyage should be supplied with a proper quantity of lime or lemon juice.

"The juice having been received in bulk from the vendors, should be examined and analysed by a competent medical officer. All measures adopted for its preservation are worthless, unless it be clearly ascertained that a pure article has been supplied.

"Ten per cent. of brandy (sp. g. 930), or of rum (sp. g. 890), should afterwards be added to it.

"It should be packed in jars or bottles, each containing one gallon or less, covered with a layer of oil, and closely packed and sealed.

"Each man should have at least two ounces (four table-spoonfuls) twice a week, to be increased to an ounce daily if any symptoms of scurvy manifest themselves.

"The giving out of lime or lemon juice should not be delayed longer than a fortnight after the vessel has put to sea."

HINTS ON TEA-MAKING.

IF the tea is desired to be of good flavour, be careful not to make it in a teapot which has been long out of use without having previously washed it out with boiling water. This is done to remove any slight mouldiness which might be present in the vessel without being observed, and which would impart a disagreeable taste to the tea when made. Always keep the tea in a proper canister, protected from the atmosphere and from damp, otherwise it will lose the pleasant scent peculiar to good tea, and when used, give the beverage an unpleasant flavour. For this reason be very careful, if possible, never to purchase tea which has a musty odour, even in the slightest degree, or which does not possess that agreeable scent so characteristic of tea in good condition, but which is so quickly lost by exposure to damp. In making tea always fill up the teapot at once. By this means the whole of the theine—which is the vegetable principle on which the peculiar effects produced by tea depends—is extracted at once. This will be found much superior to the plan sometimes adopted of first wetting the tea with a small quantity of hot water, and then allowing it to stand before filling up the teapot. For the purpose of extracting the whole of the theine, the water should be allowed to remain in the tea for at least ten minutes before pouring it out. Be also very careful that the water employed for making tea is boiling before filling the teapot, otherwise the whole of the theine will not be extracted by the fluid, and the tea employed will not go so far as it otherwise would.

HOUSEHOLD AMUSEMENTS.—XXXVII.

PHOTOGRAPHY (Continued from p. 154).

The Chemicals.—The amateur should purchase his chemicals of good vendors, and not rashly conclude that the cheapest chemicals will answer as well as the dearest, for more failures can be traced to the use of impure chemicals than to any other cause. At the same time we must not run to the other extreme, and suppose that the dearest chemicals are necessarily the best.

Collodion.—Let us first briefly describe what this is. Pyroxyline is a kind of gun-cotton, obtained by the action of nitric and sulphuric acids on vegetable fibres, cotton wool, &c. When dissolved in certain proportions of ether and alcohol, at a certain carefully ascertained temperature, it forms the collodion used in photography. It should be kept in well-corked bottles, in a cool, dark place. It is best to keep the bottle containing it upright, to preserve it clear of suspended matters. If some of our readers are ambitious of making their own collodion, we can promise them quite a little world of perplexing troubles and difficulties, not unattended with danger, and a full crop of failures, and in that case we recommend them to purchase some work containing a more elaborate and detailed account of its manufacture than we think it necessary to give. If the collodion is made of bad pyroxyline it frequently gives an unsuitable, uneven film when the glass plate is coated with it. A similar result will, however, arise from an excess of ether in the collodion, by which it is rendered too quickly adhesive; or from the contrary cause, when the ether may have evaporated, as it does when the bottle is left imperfectly corked. The remedy in this case is of course the addition of ether, which must be carefully done, and with *strong ether*. A want of ether in collodion sometimes causes the film to peel from the glass after it has been taken from the silver, or sensitising, bath. But then, again, this defect may also be due to the use of an inferior sample of pyroxyline. Excess of ether will sometimes result in a species of unevenness called "curtains," because of an appearance of straight folds in the film, like those of a suspended curtain. When the collodion contains too much alcohol, the fact is sometimes betrayed by its containing "nibs," that is to say, small lumps of undissolved collodion; sometimes, by the film peeling off—as in the case of a deficiency of ether; and sometimes by the film not being, as it should be, of one uniform thickness throughout, but more or less gradually thick from one end to the other. If the collodion is too thin, a little additional pyroxyline is required, and may be added. When it is too thin it generally runs off the edges of the glass. There is one other defect arising from bad collodion, to which it will be as well to call attention, namely, that which is known as "crapiness." This consists of a kind of net-work, or reticulated and semi-opaque effect, extending uniformly over the whole surface of the film. It is due to an excess of water in the collodion. A very small proportion of water improves the film, by rendering it more readily permeable by the aqueous solution, more thoroughly or quickly sensitised, by facilitating the removal of the soluble salts from the film, and enabling the developing and fixing solutions to effect their business more readily and thoroughly. The quantity of water which does such good services requires to be very nicely estimated, and is usually insured by the employment of alcohol, or spirits of wine, which has not been too highly rectified. Crappy films are often so rotten that a stream of water falling on the plate will wash them away. We may, however, here mention one defect, similar to that of "crapiness," which appears when the plate is put into the silver bath too soon after it is coated with the collodion, that is, before it is set, on which point we shall have more to say. A little ether added to the collodion some-

times cures this evil. These are the principal ^{ills} to which collodions, when badly made, are heir, and we thus briefly note them in order that you may recognise bad collodions, and trace failures to their true causes, although by purchasing from a good maker you may practise for years without once meeting with such troublesome samples. A good photographic collodion gives a smooth, transparent film of uniform thickness, devoid of either specks or markings of any kind, and is in colour either a pale lemon or quite white. So far we have been speaking of what is termed normal or plain collodion. Before this is used it requires to be subjected to a process called iodising, or bromo-iodising, to which we shall refer again. If we require it for what photographers know as positive pictures—that is to say, pictures taken on the glass and *finished* on the glass—one formula is used; if for negative pictures—that is to say, pictures used for the production of *positives* on paper by the process of photographic printing—then another formula must be adopted. But, as a general rule, we recommend the beginner to purchase his positive or negative collodion ready for use, as most amateurs do. A good positive collodion should be of a pale sherry colour. When it is of a much deeper colour it is too old and insensitive. Of collodion used for the "dry process" we shall speak separately. Bromo-iodised negative collodion should not be used too new, and it will keep in good working condition a very long time—some say, years.

Nitrate of Silver.—This chemical, in solution, forms the sensitising bath to which we have already referred in connection with the vessel in which it is held. (See page 152 of this volume.) It renders the film of bromo-iodised collodion on the glass plate sensitive to the chemical action of light, and so plays a very important part. Nitrate of silver, in its purest form, is made by dissolving silver in pure, but diluted, nitric acid, and by its being afterwards subjected to evaporation, crystallised, and recrystallised, so as to get rid of every trace of alloy. Impure nitrate of silver is one of the photographer's greatest enemies. It is most frequently adulterated with nitrate of potash or other cheap alkaline nitrates. The crystals are in this case more varied, and some will be found of a longer and different form to the others. Such samples of silver reduce the strength of the baths, but without introducing any seriously mischievous chemical element into the bath—in other words, cheat the purchaser, but at the same time do him no more mischief than may result from his silver bath wanting its proper degree of strength, and so requiring a larger quantity of the adulterated nitrate. If present in too large a quantity, however, such adulteration will cause the film to be perforated all over with minute holes, which the photographer calls "pin-holes," a defect of considerable importance. The simplest means of testing the purity of nitrate of silver is perhaps the following, which we extract from Mr. Wall's *Photographer's Annual*:—

"*Test for Purity.*—Pure nitrate of silver precipitates its weight of iodide of potassium. This furnishes a simple means of testing if it contains the required quantity of silver. Proceed as follows:—First, dissolve forty grains of the salt to be tested in two ounces of water. Second, dissolve also forty grains of iodide of potassium in two ounces of water. Third, dissolve sixteen grains of nitrate of silver which you know to be pure, in two ounces of water. Fourth, mix the first and second solutions together: a yellow precipitate of iodide of silver will be formed, which will settle, leaving the liquid slightly troubled, containing little yellow iodide of silver in suspension. An addition of the third solution will clear up the liquid. When only a few drops have to be added to accomplish this result, the nitrate of silver may be considered pure; but when larger quantities are added, without clearing up the liquid, the salt is probably mixed

with some other nitrate. To determine how many grains of nitrate of silver are short, add one drachm at a time of the third solution, shaking after each addition, until the liquid becomes clear. The number of drachms to be added will represent the number of grains of nitrate of silver short." If your silver is pure, and you wish to ascertain the quantity of silver your bath has in solution after it has been in use some time, and therefore weakened, the instrument called an argentometer may be made use of. It acts on the principle of the hydrometer, and is so constructed and graduated, that on being floated in the solution the number of the scale upon it indicates with sufficient accuracy the number of grains of nitrate of silver then present. Pure nitrate of silver assumes the form of flat, white, and nearly transparent four or six-sided crystals, and has a tendency to liquefy on exposure. Recollect that nitrate of silver is poisonous, and we may add that its best antidote is ordinary salt, chloride of sodium, or iodide of potassium. The re-crystallised nitrate of silver should always be chosen by the photographer, in order to avoid adulteration, if possible, and with the same end in view he should purchase it of a good, trustworthy dealer.

Protosulphate of Iron.—The non-photographic reader will probably know this salt better under the name of copperas. Its crystals should be of a clear, bluish green, and in the form of oblique rhombic prisms. In dry air they effloresce, and in moist air oxidise. Iron is now generally used by photographers in the process of development, although pyrogallie acid was at one time used exclusively. The only impurity of consequence sometimes found in this salt is due to the peroxidation of part of the base, which is easily detected, as it causes the crystals to be more or less tinged with yellow.

Alcohol.—This is of great use in photography. Unless otherwise specified, methylated alcohol may be used in all cases. This should not be confounded, however, with methylated finish, which is useless, if not injurious, in photographic manipulations.

Acetic Acid.—This acid is recognisable by its strong odour of vinegar. It is used to restrain the action of the protosulphate of iron in developing wet collodion plates.

Glacial acetic acid freezes at 50° Fahrenheit if pure.

Pyrogallie Acid.—This is a very light, silvery, flocculent powder, obtained from gall-nuts. It is used for developing gelatine plates, and intensifying collodion negatives. It is usually sold in blue glass bottles, each containing one ounce. The name is frequently contracted to "pyro." As it is very poisonous, and stains the skin black, it should be handled with caution. Any stains accidentally caused by it on the fingers may be removed by a solution of citric acid and common alum.

Citric Acid is found useful because it acts as a powerful retardant to the reduction of silver salts in the process of intensification. When added to the pyrogallie acid solution, for giving intensity to a negative, it tends to keep the solution clear—an extremely useful service, as, when more experienced, you will by-and-by gratefully acknowledge.

Ammonia (Liquor fortis).—Most people are acquainted with the smell of this chemical. The principal use of liquor of ammonia in photography is for developing gelatine plates in connection with pyro and bromide of potassium or ammonium. It is sometimes used in the manufacture of gelatine dry plates. It should be kept in closely-stoppered bottles, not too large, as constant opening lessens the strength. In hot weather the stoppers should be tied down.

Bromide of Potassium.—This salt crystallises in small white cubes. It is used for a variety of purposes in photography. When solutions of this salt and nitrate of silver are mixed, bromide of silver and nitrate of potassium are formed by double decomposition. Bromide of potassium is also used to restrain the action of the am-

monia during the development of gelatine plates. Some people prefer to use bromide of ammonium instead of the potassium salt, but of course the quantity required is not the same, bromide of potassium having only three-fifths of the restraining power of the ammonium salt.

Alum.—Solution of common alum is used to harden gelatine films and to prevent frilling, blistering, &c. It is also used in conjunction with citric acid to clear the shadows of stained gelatine negatives.

Hyposulphite of Soda.—This salt is used for fixing negatives and prints. It works by dissolving the unaltered silver salts which remain after developing negatives or toning prints. It is of the greatest importance that it should be thoroughly eliminated after it has done its work. This can only be done satisfactorily by washing. "Hypo" saturated with silver salts is a very deadly poison, and care should be taken to prevent accidents, more especially as it has a very sweet taste. It is as well to purchase a quantity, say 7 lbs., at a time; by doing this the cost amounts to less than 2d. per lb. A more correct name for this salt is Thio-sulphate of soda.

Mercury Bichloride (Corrosive Sublimate).—A poisonous, heavy, white crystalline powder, used principally for intensifying weak gelatine negatives. It is only sparingly soluble in water.

Kaolin.—This is sometimes called porcelain clay, and is useful for restoring discoloured nitrate baths and other solutions. It is used by adding a little of it to the discoloured solution, and after shaking, allowing it to settle, carrying down the impurities, from which the solution can be afterwards decanted. You should be careful to procure the kaolin quite free from chalk, with which it is sometimes contaminated.

Chloride of Gold.—It is the *terchloride*, and not the *protochloride*, that is used in photography, and it consists of pure gold dissolved in a mixture of nitric and hydrochloric acids. Cheap samples of chloride of gold usually contain an undue proportion of chloride of sodium. It should be purchased in glass tubes, each tube containing 15 grains of chloride.

HOW TO TAKE A PHOTOGRAPH.

Having described the apparatus and the rules which should govern its selection, explained the nature of the chemicals, and how their purity may be tested, we now proceed to describe the process by which "a picture" is taken:—

Choice of Subject and Light.—The best subject upon which to commence operating will be a plaster figure or bust, painted a pale grey or stone-colour. Having placed this bust or figure before the lens, we must be careful that it is in what photographers call a "good light," this being the first important condition of success. By a good light we do not mean a strong light, as is popularly supposed, although a weak, diffused light is certainly unsuitable. We do not, in fact, so much refer to the quality of the light as to the artistic effect it produces in our picture. If we use a very weak, diffused light, not only will the exposure be considerably lengthened, but the shadows will be represented by mere flat black patches, expressing nothing of the forms they rested upon, and the whole effect will be very unsatisfactory. If we use too strong a light, a weak, washed-out effect is likely to be the result. A well-lighted apartment, with something white thrown over a screen, so placed as to reflect light into the shadows, will do, and so will the entrance to a shed or stable, or any corner of the garden in which a portion of the subject can be thrown into shadow. In a glass studio we can arrange curtains and reflecting screens so as to secure the effect we seek with comparative ease. In a garden or ordinary room the task is of course less easy. Much

however, may be done in these cases, and by availing himself of such aids as garden walls or screens afford, the student may obtain very pleasing effects of chiaroscuro. A sheet of brown paper or a blanket makes a very good background.

Focusing.—Supposing that the light upon the bust is at length arranged to our satisfaction, the next business will be to obtain a clear distinct image of the object on the ground glass in the camera. Then fasten the camera firmly upon its stand, and examine the lenses to see that the outer surfaces of the glasses are clean and bright. If they are not, carefully wipe them with a piece of soft chamois leather, or with a clean old silk handkerchief, put aside for the purpose. The camera is placed before the bust, and fixed so that the lens is nearly opposite the centre of it. Putting the black cloth over our head to shut out stray light, we slide the back of the camera in or out, noticing as we do so how the image of the bust, thrown upon the ground glass—large or small, according to our distance from it—becomes distorted and indistinct (out of focus) or distinct and accurate (in focus). Some lenses are supplied with a rack-pinion motion for focusing. When the image is so distinctly visible that, if the subject were a living model, you could trace the hairs of the head, and see the spark of light in the eye, the image is “sharp,” or “in focus,” and fit for the plate, which we may at once get ready. By diminishing the aperture of the diaphragm, or stop supplied with the lens, the sharpness may be increased, but by so doing the exposure is lengthened.

SOCIETY.—IV.

FORMS OF INVITATION, “AT HOMES,” MORNING CALLS, ETC.

INVITATIONS to formal parties are now almost invariably issued on printed cards or note-paper, with blank spaces left for the names and addresses to be filled in by the hostess. This plan saves a great deal of trouble, and by its adoption, people unaccustomed to the task are spared any uncertainty as to propriety in the matter.

At the same time, a ceremonious invitation necessarily entails a ceremonious reception, and no mere consideration of saving oneself trouble should induce a lady to adopt a form of invitation which would be calculated to mislead her guests as to the kind of entertainment that awaits them.

Every form of invitation should have for its object to clearly define the name of the person invited, the hour at which the guests are expected to assemble, and the amusements proposed for their entertainment. Last, but not least, the address of the host or hostess should not be omitted. On most of the printed forms now so generally in use, the description of the entertainment proposed is inscribed on the left-hand corner at the foot of the card or note-paper. Thus Dancing, Music, Legerdemain, &c., may signify that a ball, or concert, will take place, or that a professional or amateur prestidigitateur will exhibit his talent.

If persons prefer writing their own invitations, there are one or two common errors to guard against. For instance, it is not now-a-days necessary to present compliments in writing notes of the kind. The present fashion is to be as concise as possible. Thus:—

“Mrs. Brown requests the pleasure of Mrs. White’s company at an evening party on Tuesday, May 6th.”

If dancing is intended to take place, or any other special amusement, intimation will be given in the corner of the note, as described above, and the hour named. For example, “Dancing at 10 o’clock.”

The names of a husband, wife, and any unmarried sons or daughters residing under their parents’ roof, may be inserted in the same invitation. If married, or resident

elsewhere than at home, separate invitations should be sent to the respective addresses.

Invitations to evening parties are issued in the name of the hostess only. If, however, the intending host is a bachelor or a widower, and enjoys the comfort of having a sister or other female relative to reside with him, to keep his house, invitations are issued for evening parties in their joint names.

In issuing invitations to dinner, the joint names of the host and hostess are inserted. Thus:—

“Mr. and Mrs. ——— request the pleasure of Mr. and Mrs. ———’s company at dinner, at 7 o’clock on Thursday, 14th inst.”

On no account must people write “to” instead of “at” in notes of the above kind. The latter is an error that is very commonly committed. The mistake is not confined to autograph notes, but may frequently be seen printed on cheap note-paper invitations. Common sense should dictate that persons are invited to be present *at* an evening party or *at* dinner, and not *to* such entertainments.

In replying to formal invitations, conciseness of expression is to be observed. As, for example, “Mr. and Mrs. ——— regret that a previous engagement prevents their accepting Mrs. ———’s kind invitation.” Or, “Mr. and Mrs. ——— have much pleasure in accepting Mr. and Mrs. ———’s kind invitation for the 12th inst.”

If any special reason should occur to prevent invited guests from accepting an invitation, it is well to insert such reasons in the reply. Or, if details of the kind would be inconvenient, a formal refusal of the invitation should be written in the usual manner—that is, by the writer simply regretting that he will be unable to accept the proffered invitation—and enclosing at the same time a friendly note explaining the cause which deprives him of the pleasure. A “previous engagement” is a form of excuse that is very commonly assumed when a guest really does not wish to be present at an entertainment.

To accept an invitation with the intention of not being present is a violation of good taste, which should not be tolerated. If every one did the same, it is obvious that hosts and hostesses would be put to considerable expense and inconvenience from unpardonable insincerity. If, from unavoidable circumstances, persons are prevented from carrying their intention of accepting an invitation into effect, the earliest intimation possible should be given of their disappointment, and, if possible, the reason explained. This may be done either by letter or a personal visit before or after the party takes place.

Of late years the fashion of receiving people by means of what are termed “At homes” has become very general. Invitations of the kind are of an elastic nature, and may either signify a formal reception of guests, or a friendly gathering together of intimate acquaintances.

The best indication of the kind of entertainment proposed will be found to consist in the manner of issuing the invitation. If a large card with broad margins be sent, bearing the name of the intending hostess simply inscribed in engraved letters, and the date appointed, a grand reception may be in prospect. Or if the lady’s visiting-card only be sent, or left at the future guest’s house, with the words “At home” and the date written in the hostess’s own hand, in ink or pencil, a less formal meeting may be anticipated.

“At home” cards need not be replied to, unless they contain a request for an answer. If more than one day is fixed by the hostess for being at home, invited guests need not go on every occasion. They please themselves in the matter; neither need they stay any particular length of time. In fact, having presented themselves to the hostess, and spoken to particular friends and members of the family with whom they are acquainted, they may retire as soon as convenient.

The introduction of the French system of receiving friends on a particular day of the week, without issuing any formal invitations whatever, is growing year by year in more general favour in England. It soon becomes known amongst a circle of friends on what day, and at what hour, anybody is mostly to be found disengaged; and those who really wish to maintain a friendly footing in their own sphere of acquaintances endeavour from time to time to present themselves.

Apart from the formation of valuable acquaintances, of which the present fashion affords the readiest and most simple means, the true economy of time is in itself an important consideration. Maintained as social life now is, busy as people best worth knowing always are, and living, as most people do, at inconvenient distances from what were but a few years ago centres of society, unless some such understanding as alluded to prevails, morning calls and unceremonious visiting must cease to be observed by all who are actively employed. Few persons are able now-a-days to undertake a journey to the distant suburbs of London without serious personal inconvenience and neglect of more pressing affairs. And when at the journey's end the friend is found to be "not at home," regret for lost time is the mildest form such disappointments are apt to take.

When a hostess determines to receive her friends on a certain day of the week, and circulates intelligence to that effect, she is as much bound to stay at home on that day as though she had formed a business engagement to do so. Her house should be in order, her children prepared for visitors, and her servants freed from any household labour that is of a nature to cause them to appear in disorderly haste or untidy clothes. Household cleanliness and repose are the only arrangements needful for such receptions of visitors. If refreshments are offered at all, tea is simply handed round, or wine and biscuits, as may be preferred. Tea is made out of the room, and poured into cups, leaving the guests to add sugar and milk to taste. The ordinary length of visit is observed in morning calls of the above kind.

It sometimes happens that servants inadvertently admit visitors when the mistress or master of the house is engaged in a manner that prevents them from receiving strangers. If this should be the case, the person for whom the visit is intended should send word by the servant, that in a few minutes, or a longer time if necessary, the master or mistress will be disengaged; at the same time the visitor should be requested to be seated. It is an affront to dismiss a person who has been admitted, without an interview. No less a breach of good manners is committed when a visitor is kept waiting whilst the lady of the house, for instance, is changing her dress, ornamenting her hair, or similarly engaged. The reason for such delays is generally so obvious, that the excuse, of having been detained in presenting an appearance from any other cause, is of little avail. A lady should always be prepared to receive visitors, if at home, between the hours of three and five o'clock. If not "dressed" by that time, she should give her servant notice not to admit callers. Persons who have the ill taste to present themselves during the hours usually devoted to the duties of housekeeping should either not be offended if refused admittance or should be on a sufficiently friendly footing to be received without any ceremony.

When making a ceremonious morning call, a gentleman should take his hat with him into the drawing-room, and when there should hold it in his hand in an easy manner. If it should happen that he is obliged to place his hat out of hand, he must not put it on the floor, or under his chair, but on some piece of furniture. It is not now necessary for a gentleman to take off his gloves, if they be particularly well-fitting and of light colour. The right-hand glove of ordinary kinds may be removed whilst the gentleman ascends the

staircase, but he should not keep a lady waiting whilst he is ungloving, before taking her hand.

The rules of etiquette which apply to "shaking hands" are rather complicated to the uninitiated, and may require comment—offence being apt to be taken where none is meant, from want of accurate information on the point. In the first place, the term "shaking" hands is inappropriate; the mode of salutation consisting of gentle pressure and very slight movement from the wrist. In all cases, except of the greatest intimacy, the gentleman is not the first to offer his hand: unless he be the superior of the lady in age and station, he waits till she makes the advance. Unmarried ladies do not offer their hand to gentlemen with whom they are slightly acquainted. A slight curtsy on the one side, and a lifted hat or bow are sufficient signs of personal recognition.

Foreigners rarely offer their hand, unless they have been a long time in England, and understand the custom as observed in this country.

On entering a crowded room, a well-mannered man seeks first the hostess. He endeavours to be blind and deaf to all familiar faces and voices until he has presented himself to the lady of the house—he then bows. If on sufficiently intimate terms, the lady offers her hand. Having performed the above duty, the visitor generally makes a few trivial remarks and retires, leaving room for others to advance. A gentleman finds a chair for himself, or walks about, or stands, as he feels disposed, whilst ladies are left to the care of the hostess to provide them with seats; or, at least, she deposes others to do so. At ceremonious receptions, the lady of the house generally takes up her position for receiving her visitors at the head of the staircase leading to the reception-room, or just within the principal entrance of the room. By doing so, she saves herself and guests a great deal of trouble.

When, in paying morning calls, visitors are announced, the lady of the house need not advance to meet them, unless she wishes to offer a particularly cordial reception. She rises and waits, until the guests have advanced sufficiently near, to offer her hand. Any gentlemen that may be present rise when ladies enter the room, and remain standing till they are seated. On ladies leaving, gentlemen rise, and the most intimate gentleman accompanies them to their carriage. The position of the lady of the house should, in her own drawing-room, be near the bell, in order to give timely notice, by ringing for servants to attend in the hall. A servant should wait at the hall-door whilst visitors are descending the staircase.

When a visitor has paid a morning call of average duration, and fresh comers are announced, the former visitors should rise to take leave. Unless very urgently pressed to prolong the visit, retirement should instantly follow.

The dress worn at ceremonious calls should be plain walking costume. If ladies use their own carriage for conveyance, any wraps not to be worn in the house should be left in the carriage. Ladies who walk when paying visits should be attired in a quiet style of dress.

Frequently ladies who have carriages invite those who have not, to accompany them on a round of visits. In houses where they are mutually acquainted, ladies thus situated enter together, precedence of course being given to the superior lady in age and station. Unmarried ladies, driving with elderly or married people, take the seat with the back to the horses. A ceremonious offer of the opposite seat may be made, but should be declined. When there is only one step to the carriage, and a person intends to sit facing the horses, the left foot should be placed first on the step; when a contrary position is intended, the right foot should be placed on the step first. Unmarried gentlemen, when driving with unmarried ladies sit opposite the ladies, not side by side. Gentlemen always alight first, and assist ladies to alight.

CHINA AND STONE WARE.—I.

THE word "ceramic" (or more correctly, keramic), now generally used in connection with the of the potter's art, is derived from the Greek *κεραμος*, "a tile," and may be applied to every production of which baked clay forms the basis. But the limitation of the term to those articles in which artistic design is added to purposes of utility is sanctioned by usage, and we employ it in that sense in the following articles. We have already described the manufacture and varieties of the more common form of earthenware; and we now propose to devote some space to a general description of those products of the art which are more gratifying to cultivated taste, or which are collected by connoisseurs as specimens of the progress of the art in different countries, or as presenting marked and interesting features indicating what, to borrow a phrase from the history of painting, we may designate as the various "schools" of pottery.

Our illustrations will represent specimens of the principal varieties; and we shall add a very copious collection of manufacturers' marks, which will assist the collector in identifying specimens. "Old china" possesses an almost inexhaustible attraction for many persons; and choice articles are eagerly sought after, and when obtained treasured as objects of historical interest no less than as attractive additions to the ornaments of the house.

Egypt, Syria, and Babylonia appear to have been the nations first acquainted with the art of making sundried bricks and pottery; and almost about the same time we hear of Roman, Chinese, Greek, Moorish, Armenian, Celtic, and other nations having invented means to form vessels for domestic use, and to improve them age after age, until the rude and simple forms of cups, and bowls, and vases, modelled with the hand, gave place to beautifully moulded and more elegantly adorned works of art; and from the fifteenth to the eighteenth centuries Dresden, Sèvres, and Chelsea produced the pottery and porcelain

so valued at the present time by connoisseurs and collectors of old china.

Majolica pottery is a soft enamelled ware, considered to have been introduced into Italy by the Moors in the twelfth century. The first Italian factory was at Faenza. Pottery was also made at Pesaro, Gubbio, and at Urbino, Perugia, Ferrara, Monte Capo, Naples, and other towns of Italy, and majolica pottery will be found to bear all these names, and the marks which distinguish the various kinds; and we must here remark that admirers of old china who wish to know one kind from another will find at the bottom of old plates and vases manufactured after the twelfth century certain marks and monograms to designate the place at which it was made, the maker's name, or the date—sometimes the mark shows the place and the date; and in genuine articles it will be found to have been stamped while the clay was moist, and before it was glazed, rarely any other colours than blue or gold being used.

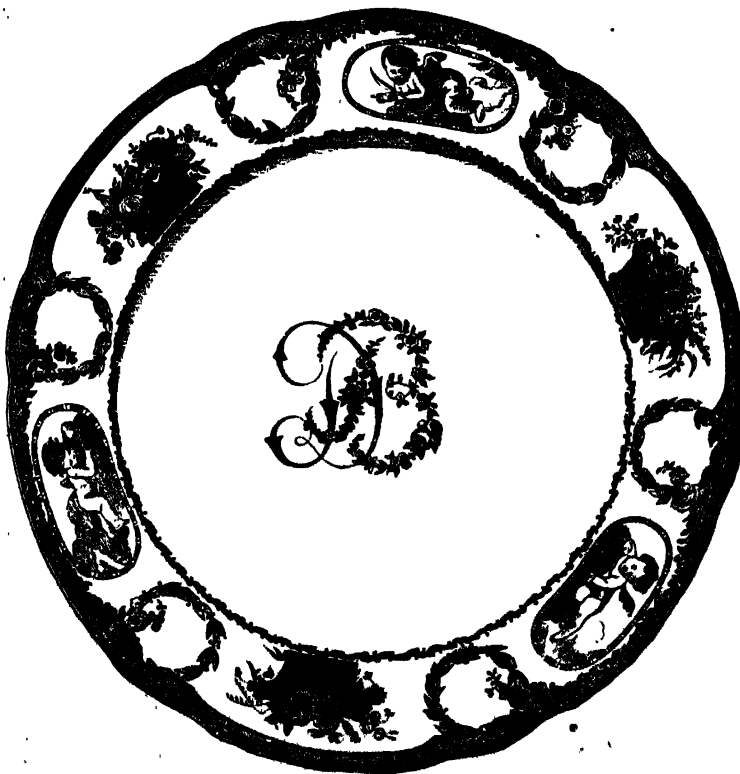
This pottery is of great value, and many beautiful specimens exist in the shape of wall-tiles, vases, ewers, jugs, dishes, plates, and various other articles for domestic use, beautifully painted by artists of great merit. Some specimens are painted by Raphael, others from copies of his works, the Duke of Urbino having even collected them for that especial purpose between 1538 and 1574. Therefore the majolica of Urbino will be found exceedingly rich in painting, and consequently valuable.

There are very beautiful small pieces of majolica, consisting of plates, dishes, and vases, which are ornamented with the portrait and Christian names of private individuals. They are styled *amatorie*, and were sent by friends and lovers one to the other, as tokens of regard. The finest specimens of majolica soft pottery are those made previous to the sixteenth century; after that date it declined in beauty. A century afterwards it was re-introduced at Naples, but the colours were not so good.

The term "Faience" is supposed by some to be derived from the town Faenza, mentioned above; but French



VASE IN IRAN PORCELAIN (PERSIAN).



SERVES PORCELAIN (INITIALS OF MADAME DU BARRY).

ence" or "Faience" is supposed by some to be derived from the town Faenza, mentioned above; but French

antiquaries consider the term to be purely French, and the name of the French town Fayence itself, as a pottery existed here before that at Faenza in Italy.

French pottery takes its rise from its persevering, ingenious inventor, Palissy, A.D. 1558. It is enamelled, with raised ornaments; the colours are bright, and the objects represented true to form—the shells, fish, reptiles, and plants having been moulded from nature. Dishes, ewers, salt-cellars, tiles, and vases, are found decorated with grotesque figures of boars' heads, human heads, reptiles, fish, and shells.

The pottery of Nevers is common in quality, but of a brilliant dark blue, enamelled, having white or orange patterns upon it. Enamel is an opaque composition with which certain ware is covered. Tin forms the chief part of enamel, and it is laid over the glaze. Rouen was also celebrated for its pottery in the seventeenth century.

Ratisbon, Landshute, and Nuremberg have produced specimens of a superior kind of German pottery. The brilliant green colour, blended with brown and yellow, its complicated forms and elegant workmanship, distinguish this pottery and stamp its perfection. Drinking-cups, inkstands, and other

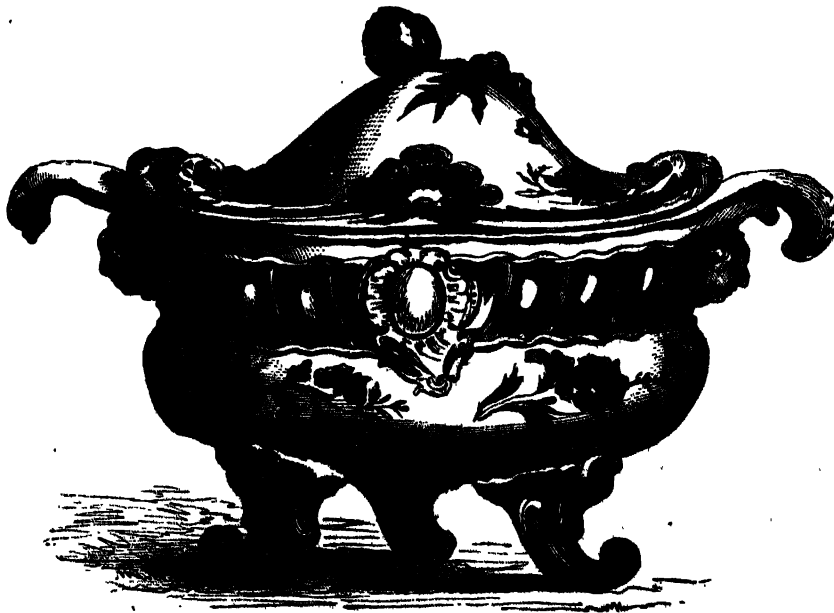
porcelain caused the decline of this pottery, and it ceased to be made in the seventeenth century.

HARD POTTERY.

This ware is distinguished from the preceding by its incapability of being scratched; it is the pottery of the sixteenth to the eighteenth century. There is a beautiful French species of this pottery known by the name of the "Faience," or "Fayence of Henry II.," Faience being the old French term for all earthenware; but the history of this beautiful pottery is entirely lost, although it is considered to have been made in Touraine and La Vendée, in imitation of the soft pottery of Urbino. The style of its ornamentation is very remarkable; it may be distinguished by the patterns being engraved on the paste, and filled in with other coloured pastes in zones of yellow, with borders of brown, pink, green, violet, black, or blue; but dark yellow is the predominant colour. The paste is very fine and white, and simply varnished, not glazed. Raised ornaments in bold relief, of a pink colour, consisting of lizards, frogs, shells, garlands, masks, and escutcheons, enrich these elegant articles, which are usually small,



GOBLET WITH NATURAL LEAVES (PALISSY).



SOUP TUREEN (BRETAGNE WARE)

articles are formed of this ware, the prevailing colours being green and blue.

The black glazed ware is produced in Lower Saxony. The soft, painted and glazed ware of Holland was made at Delft, whence the name. It is singular in form and colour; the enamel is very fine, and of a bluish-white colour. The articles in delft pottery are chiefly copied from the old Japan porcelain, and so well imitated as to defy in some cases the closest scrutiny.

The introduction of the fine English wares and Oriental

the ornamental cups and vases being about seven inches high. Of some the upper part is white, with yellow patterns; the lower part black with white ornaments. Others have a white ground with brown arabesques, and lizards and frogs enamelled in green. The value of a small candlestick is above £200, and a tiny cup seventy guineas. The museums of Paris possess beautiful specimens of this exquisite pottery; and in the South Kensington Museum, as well as in many private collections in this country, articles of great value and beauty are preserved.

ENGLISH POTTERY.

Fine Hard Ware.—Bow, in Middlesex, a few miles to the east of London, near the River Lea, is considered to have possessed the first English manufactory of fine hard ware, which was made in the moulds that had been previously used for the metal utensils. The ware of Elizabeth's time is hard, of a dingy white, relieved by ornaments of figures and foliage. Butterpots, of brick earth, were glazed with pulverised lead ore, dusted on the ware; and the "tig," or drinking-cup, with three handles, and the parting-cup, with two handles, are among the earliest specimens. Ale jugs were first made about the time of the Revolution, and are found occasionally ornamented with pipeclay, which, in the reign of George I., was improved by a mixture of coloured sand, producing the agate or tortoise-shell ware.

In 1762 six different sorts of pottery and stoneware were made by Wedgwood, and his beautiful imitations of works of art, in the shape of antique vases, cameos, medallions, and seals, together with his copy of the Barberini (Portland Vase) gave him great celebrity, and, at the same time improved the condition of English pottery. Wedgwood succeeded in introducing into English wares the vivid colours and brilliant glaze which had hitherto been alone the property of porcelain; and in Germany and Holland our fine hard ware was now in turn imitated, and in Italy a mixed sort of pottery was introduced. Wedgwood employed Flaxman for his designs, and his cameos ranked with the finest productions of Dresden and Sèvres.

STONEWARE.

There are two kinds of stoneware, common and fine. Of common stoneware all kinds of domestic utensils are made. Fine ware differs from it in the superior composition of its paste.

In China, stoneware has been known from an early date, and it is used there as the basis on which is laid a finer material. This gives to the article a greater strength, and at the same time is economical. On an examination of Chinese articles in porcelain, the interior will be sometimes found of a coarser quality: Red Japan ware is a very fine unglazed stoneware, with raised ornaments.

The stoneware of Germany is valued for its fine quality, rich decorations, and the fine colour of the enamel. The most ancient specimens come from the Lower Rhine, and consist of flasks, drinking cups, and covered jugs, made of a fine yellowish colour, without glaze. They are ornamented generally with Scripture subjects, either engraved or moulded. The mugs and jugs of 1540 are ornamented with figures enamelled in various colours, sometimes of a very fine blue.

The stoneware of Flanders is very remarkable in shape and appearance. It is of a beautiful blue colour, with rich raised white patterns, but since the fifteenth century only very inferior articles have been made, rendering those manufactured before that period of great value. This Flemish ware may be recognised by its grotesque forms. Sometimes a jug is composed of four distinct compartments; and another, the pilgrim jug, will be found quite flat, and elaborately ornamented in the finest of workmanship. In France, the stoneware manufactory near Beauvais dates beyond the sixteenth century, and the style of the ware is similar to that of the Flemish.

ODDS AND ENDS.

Fern Work in Colours.—Since the publication of our directions for fern work (see "D'Oyleys, Anti-macassars, &c., from Natural Foliage," page 225, vol. ii.), a great improvement has been made in the art by the introduction of colour. Aniline dyes, best known under the name of

"Judson's simple dyes for the people," are the colouring fluids used; these being mixed with a larger or smaller proportion of water, according as a deeper or fainter tint is desired. The process by which these fluids are applied to the lace or other fabric is precisely the same as that recommended in our directions for black and white work. From the aniline dyes, a considerable range of brilliant hues may be produced, and the employment of them not only gives to fern work the charm of colour, and the beauty of variety, but has also the advantage of permitting the d'Oyleys or other articles to be washed, which is not the case when Indian ink or lamp-black is used. These dyes bear any moderate amount of washing, though it is not desirable to expose them to the action of soda.

Sponge.—Several varieties of sponge are met with in commerce. Thus there is the large Turkey cup sponge, sold wholesale at from twenty-five to forty-five shillings per pound; the medium Turkey cup sponge, which consists of smaller pieces, and is sold at from sixteen to thirty shillings per pound; and the small Turkey cup sponge which is worth very much less. The cup sponges are so called from being of the shape of a cup. They are the finest kind sold, and are distinguished by the smallness of their cells, the ease with which they can be compressed into a small bulk, and the elasticity with which they resume their former shape when the pressure is removed. From their softness and other good qualities, this kind should always be selected for household purposes. Next in value are the honeycomb sponges, so called from their fancied resemblance to honeycomb. The cells in this variety of sponge are very large and coarse. Honeycomb sponges are divided into large, which are valued at from ten to twenty-four shillings a pound; medium, from eight to fifteen shillings; and small, which are of much less value. There are other kinds of sponges sold in shops—the West Indian for example, which is a very common and cheap variety, being worth only from five to six shillings a pound. The brown Turkey is another very common sponge, used for stables and similar purposes; so also is the Bahama, which is about the worst sold. The latter varieties of sponge are the kinds usually exposed for sale in the streets, and by hawkers, who travel with them for the purpose.

Wool-work on Baskets.—In France ornamental baskets are frequently to be seen, upon which a pattern has been placed by working through and over the wicker-work with German wool. The effect of colour thus obtained is often very pretty, those patterns looking best which are bold and decided in their character, such especially as bands of stars, crosses, &c. We recommend the practice to the notice of English ladies.

Picture Screens.—At page 129, vol. i., we gave an article on mounting picture scraps upon folding screens. In addition to the methods for which directions are given in that place, we may mention that we have seen screens exceedingly rich in appearance, and which have the advantage of, completely securing the drawings or prints placed upon them from injury, constructed in the following manner. The panels which are to receive the pictures have glass placed in front of them, and the projecting wood-work around and between the panels, which is about three and a half inches in width, is gilt. This method is more especially adapted for setting off coloured scraps, such as water-colour sketches, chromo-lithographs, &c., and even valuable drawings may be made use of in this manner, as they will be perfectly safe from dust and dirt.

The Reason why Plants should not be kept in Bed-rooms at Night.—Although the presence of plants in sleeping apartments, so long as they are exposed to the action of the sun's light, tends to increase health, owing to the quantity of oxygen they exhale; yet at night they should always be removed, as during the darkness they

give off, instead of oxygen, carbonic acid gas, which produces the most injurious effects on the system, even when respired only in small quantities. The reason why plants produce another effect when exposed to the light than when in darkness, has been attributed by Liebig to the leaves, when not under the influence of light, allowing the carbonic acid furnished by the root for the support of the plant to escape.

THE HOUSEHOLD MECHANIC.—LV.

WINDOW MENDING.

THAT a person should be able to mend a broken window is sometimes a matter of great convenience, and the exposure to weather during the time which must frequently elapse before a glazier can be procured to put in a new pane, is often exceedingly disagreeable. As regards economy the saving to be effected by being able to mend one's own windows is considerable, and the work is so simple that it may readily be done.

In ordinary modern windows the glass is fixed to the sash or other wooden framework by putty only, and a broken pane has to be removed by chipping away the old dry putty with a "hacking-knife" and a hammer. The hacking-knife used by glaziers is a straight piece of steel, to which two thick pieces of leather are riveted to serve as a handle, this being considered the best arrangement for lessening vibration. Such a knife costs eightpence, but in default of it the putty may be cut away with a chisel. The woodwork having been cleared, a little linseed oil should be rubbed over it to make the new putty adhere more firmly, or, in the case of a new sash, a coat of paint is better, and a thin bed of putty should be laid against the bar to receive the glass. A "stopping-knife" is the proper tool for puttying; it also costs eightpence, but its place may be supplied by any knife which has a blade of a similar shape.

Putty may be procured at any glass warehouse or oil and colour-man's, at one penny per pound. It consists merely of powdered whiting beaten up with linseed oil, and has the property of setting very firmly when dry. When bought, putty is frequently stiff and intractable; if too dry it may be moistened by the addition of a little linseed oil, and be made to work easily by moulding it in the hands, or, if very hard, by beating it with a hammer. If putty is required to be kept for any length of time it should be pressed down in a vessel and a little linseed oil should be poured on the top.

On the bed of putty the square of glass has to be pressed down evenly, and secured in its place by another layer of putty, triangular in section, which can be easily put on and smoothed down with the point of the stopping-knife. Putty takes a considerable time to dry under ordinary circumstances, somewhere about a month, and till it is dry it should not be painted. If a coat of paint be then applied it will be of great service as a protection, but if laid on previously, or indeed at any time when the putty is damp from weather or other causes, it will render it liable to crack and peel off.

In towns, where a glass warehouse is easily accessible, we would not advise any attempt being made to cut glass. The better way is to cut out a square of paper to the exact size and shape, and to send it to the glass warehouse, where the shopman will cut a counterpart of it. In the country, however, this will not always be practicable, and it may be necessary to buy a diamond and to learn how to use it. A glazier's diamond* may be bought for six or seven shillings, and is used by drawing it along the side of a flat ruler in such a manner as to "cut" the glass. Some little practice is required before the diamond can be

held just at the right angle to make a good cut. The glass will not always break exactly to this, and little pieces will sometimes remain projecting beyond it. These may be removed with a pair of pliers.

The glass now used for ordinary windows is "sheet-glass," which has within the last few years superseded that known as "crown-glass." Crown-glass is made by blowing a hollow globe, cutting off the end, heating, and making the globe fly open into a disc by whirling it round. Glass thus made has a "bull's-eye" in the centre of the disc, caused by the adhesion of the rod on which it is whirled. No very level surface can be obtained in it, and it will not admit of very large squares being cut from it. Sheet-glass is blown in the form of a cylinder, cut open, and flattened. A much smoother surface can thus be given to it, the shape of the sheets, being rectangular instead of round, is one which involves less waste, and admits of squares being cut up to 50 inches by 36. Good, fair 15-oz. glass may be had at 2d. per square foot, and may be bought up to 6d. per foot. As good as need be desired for window purposes is 21oz. glass, at 5d., but few persons would care to give so high a price. Coloured glass is more expensive. Some colours may be had at 9d. Blue and amber cost 10d.; ruby as much as 1s. 8d. per foot. Glass embossed with a small dead pattern, suitable for hall doors, the lower panes of front windows, &c., may be bought from 7d. in small squares, but is more expensive in large ones. For sky-lights, and for some places where a strong glass is required, and where light is to be transmitted, but where the window is not required to be seen through, "rolled plate," which has a ribbed surface on one side, is useful. It costs about 5d. per foot. A still stronger glass is "hammered," or "cast-plate," which has a rough, uneven surface. This is very thick, and cannot be seen through; it may be bought at 8d. in small squares. All kinds of "plate-glass" are, it should be remembered, much more expensive in large than in small pieces. Of plate-glass, as made for shop fronts, it is unnecessary for us to speak, as this would scarcely be used by any but a practised glazier. It is much more costly than sheet-glass, and is made by pouring molten glass on a metal table, rolling it with a hot roller, and afterwards grinding and polishing it.

The old-fashioned method of fastening a window together by leads is now rarely employed, but there are cases where such a window may require mending. Into these a new pane may be easily let by turning up the edges of the lead with the stopping-knife, and after the glass is put in, smoothing them down again with the same tool. Broken leads are more difficult to deal with. The vertical pieces of lead are cut to an obtuse V-shape at their ends, and let into the horizontal ones, being afterwards secured in their places by soldering.

For this operation the soldering "copper-bit," described in a previous article, and called in some parts a "doctor," is needed, and consists of a piece of copper, flat at the end, which has an iron shank and wooden handle. This has to be heated just hot enough to melt the solder, but it must not be made too hot, or it will melt through the lead also. When heated it should be rubbed on a small piece of tin, with a little resin, till the end shines, to ensure its being perfectly clean. A little powdered resin may then be sprinkled over the joint, to serve as a flux, the strip of solder laid upon it, and melted down so as to unite the ends of the lead. Solder may cost about a shilling per pound, or more if the proportion of tin be a large one. It is made of a mixture of lead and tin, and melts at a lower heat than the former metal. The cost of window-lead is about 3½d. per pound. It is pressed into the shape in which it is used in a kind of mill. Bars of lead, in a cold state, are passed between rollers, and they emerge on the opposite side in long, slender strips, with deep grooves on either edge to receive the glass.

* Since this article was first issued the American patent diamond has come into general use with satisfactory results. It costs only one shilling.

CLOCKS AND WATCHES.

II.

IN small portable clocks a weight cannot be employed, in which case motion is given to the wheels by means of a coiled spring of fine elastic steel. One end of this spring is fastened to a fixed point, while the other, endeavouring to unwind itself, carries round whatever may be attached to it. A steel spring, in unwinding itself after it has been tightly wound, exercises much greater force than when it has become slackened; therefore, if the spring be immediately connected with the wheels, the impulse given to the train would be much greater at the beginning than at the end of the action. The spring is encased within a hollow barrel, to which its outer end is attached, the inner or central end being fastened to a fixed axle. Thus, when the spring has been wound up, the force of its elasticity will carry round the barrel, while endeavouring to unwind itself. In turning round, the barrel pulls a chain, previously wound round a conical axle, termed the "fusee."

The fusee carries with it the great wheel of the train. In winding up the watch the chain is wound round the fusee, and drawn off the barrel; the spring within the barrel is coiled up, and its force rendered very great. Endeavouring to uncoil itself, it pulls the chain, which now acts upon the small part of the fusee. Having by degrees uncoiled itself, the force of the spring is weakened; but by this time nearly the whole of the chain is coiled upon the barrel, having been unwound from the fusee, and its pull, or strain, acts upon the *large* part of the fusee. When the spring is acting with the greatest force, its power is applied at a far less mechanical advantage than when its force is almost exhausted, and thus its action on the spindle of the fusee is equalised, so that from a variable force it becomes almost as regular as the force produced by the descent of a weight.

It will be well here to explain what is meant by a train of wheels and pinions, and with this view we give Fig. 1. The smallest wheel there shown, and marked A, is termed the "scape-wheel," and is intended to turn once in a minute; but this depends on the pendulum. The wheel marked B is termed the "second wheel;" that marked C, the "centre wheel;" and that marked D, the "great wheel." The letter E points out the "ratchet," which we shall presently speak of.

Fig. 2 represents the means by which, in winding up a clock or watch, the fusee is turned without the wheel-work being affected. The great wheel is hollowed out to receive the small ratchet-wheel, A, of which the teeth are cut so as to slant on one side, and to be upright on the other. There is a movable click, or "ratchet," in the same hollow, B, which is pressed down by the spring C. If the ratchet-wheel were turned in the direction of the slanting sides of its teeth, it would not carry the great wheel with it, for the ratchet would be raised by the inclined side of each tooth, and pass over them all. If, however, the ratchet-wheel be caused to turn in the opposite direction, it will carry the great wheel with it: for then the upright side of the teeth will be caught by the ratchet, so that any force exerted upon the ratchet-wheel will act upon the ratchet, and there-

fore upon the great wheel connected with it. The fusee is attached to the ratchet-wheel; therefore, when the former is being drawn by the chain in the direction named, it carries round the great wheel with it, and sets in motion the whole train. Suppose, however, the fusee were turned in the opposite direction—as it is by the key in winding, the teeth of the ratchet-wheel would lift the ratchet, and there would be no motion conveyed to the great wheel. The same is the case with clocks, and is applied to the barrel round which the line or chain, by which the weight is suspended, is wound. Amongst the better clocks and watches another method has been introduced, by which the train of wheels is kept going during the time the weight or spring is being wound up; consequently the inaccuracy which would be occasioned by such stoppage is prevented. This contrivance is termed the "maintaining power," or "going fusee."

So much for the moving force, by which the train of wheels is kept in motion. We shall next examine the regulating force, by which the action of the train is regulated.

This, in all clocks now constructed, is the pendulum; and in watches and chronometers is a wheel termed the "balance." The balance of a watch serves the same purpose as the pendulum of a clock, but possesses the advantage of occupying much less space, and of acting equally well in almost any position. A balance consists of a wheel, having an axle terminating in two very fine pivots, and so exactly balanced, that it is capable of being moved by a very trifling impulse either way. One end of a very delicate steel spring, called the "hair" or "pendulum spring," is attached to the axle, the other end of which is fastened to the framework of the watch. The action of this spring is similar to that of any other elastic body, and will resist to a certain degree any change of position of

the balance; and the greater the alteration of its place, the greater will be the resistance, until at length the force which set the balance in motion is overcome by it, and rotation ceases. The spring, however, has been so much displaced, that it tends to bring the balance back to its original position, with a gradually-increasing rapidity; and when effected, the force it has acquired will carry it equally far on the other side. This force is again resisted by the spring, and this will again bring the balance back to its former position.

Therefore a balance, having a perfectly elastic spring, and uninfluenced by friction and the resistance of the air, will continue to vibrate backwards and forwards without cessation. Three retarding influences, however, act upon it; first, want of perfect elasticity in the spring, causing each reacting force to be somewhat less than the force which acted on it; friction of the pivots; and resistance of the air. Therefore, to keep up these vibrations, it is essential that a slight additional impulse be continually conveyed to the balance, in like manner as to the pendulum. If a balance be well constructed, its vibrations are as near as possible isochronous, or regular with regard to time, however long or short the space be through which it moves. It is therefore not affected to any great extent by slight difference in the power of the impulses given it by the moving force. In this respect it has advantage over the pendulum. The balance-spring

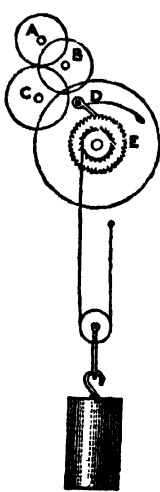


Fig. 1.

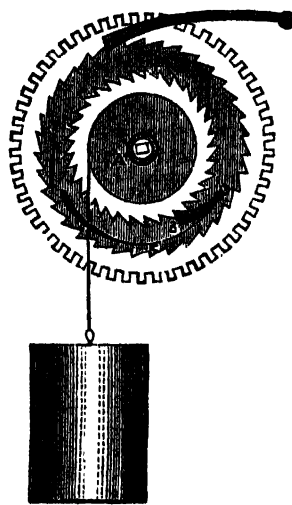


Fig. 2.

of the best chronometers is most advantageously constructed, not in the form of a flat spring, as that of a common watch, but in the form of a corkscrew.

The balance is not a complete wheel, but is of peculiar form, for the purpose of compensating for the differences of temperature. The strength of the spring regulates the time occupied by each vibration of the balance, other things being equal. The power is influenced by the length. A short spring, of like thickness to a long one, is far more elastic; thus by shortening the balance-spring its elastic force is augmented, and by lengthening it that force is decreased. The greater the elastic force, the shorter will be the vibrations of the balance, and less time will be taken by each of them; therefore the instrument will *gain* if the spring be shortened, and will *lose* if lengthened. Thus it is by altering the length of this spring that a watch is regulated.

Anchor Escapement.—Fig. 3 represents the anchor-pallet escapement, with which nearly all ordinary clocks are furnished. It is so called from bearing a resemblance to an anchor. The teeth are cut upon the edge of the scape-wheel. The centre is shown by A. From this the pendulum is suspended.

The same point is the centre of motion of the piece of metal A B C. This piece of metal is termed the "crutch," and the pallets are the extremities, marked B and C. The crutch is so connected with the pendulum, that, as the latter moves from side to side, the ends of the former move up and down. It is, as a rule, not fixed to the pendulum, because when the position of the clock is shifted, it is convenient to remove the pendulum. The position of the crutch, as represented in the diagram, corresponds with the direction, A E, of the pendulum. If the pendulum be borne to A F, the end B of the crutch will be raised still more and if it swing in the opposite direction to A F, the end B of the crutch will sink between the teeth of the scape-wheel, and the end C will be raised clear of them. The scape-wheel is driven by its pinion in the direction of the arrows; its motion, however, is interrupted by the alternate locking and loosing of its teeth against the pallets of the crutch; therefore, as the movements of these depend upon the pendulum, its vibration regulates the time in which the wheel revolves.

The pendulum is represented at D moving towards F. The elevation of the pallet B, against whose under side tooth 4 was previously pressing, has disengaged the point of that tooth, and the scape-wheel is free to proceed, but is prevented doing so to more than the interval of half a tooth; for whilst the pallet B was being withdrawn from the space between 4 and 5, the pallet C was sinking in the interval between 2 and 3; therefore the revolution of the wheel is checked by the point of tooth 3 touching against the surface of the pallet C. As the pendulum continues to move towards F, the pallet C is further lowered, and conveys a slight backward impulse to the tooth resting upon it, and to the whole wheel. This backward movement, termed the "recoil," may be observed in the seconds-hand of any clock, as this hand is attached to the scape-wheel, and carried round with it. The pendulum, having performed its swing to F, proceeds to move back again, in which it is assisted by the pressure of tooth 3 against the

surface of the pallet C. This pallet, it will be seen, is gradually withdrawn from the tooth which rests upon it, so that this at last escapes. In the meantime the pallet B has sunk into the interval between 5 and 6; so that when tooth 3 has escaped from the pallet C, tooth 6 drops against the pallet on the other side, B. The further motion of this pallet, which continues until the pendulum has reached G, causes a repeated "recoil" of the wheel; when, however, the pendulum begins to move back towards D, it is again assisted by the moving power of the wheel, which tends to make the tooth 6 (now resting on pallet B) press that pallet towards the left. When the pendulum has moved to E, tooth 3 escapes, as 2 did before, and tooth 7 falls upon the pallet C, as 2 previously did; tooth 5 having in the meantime moved on to 4, and tooth 3 to 2.

During the whole of each of its vibrations the pendulum, by means of the inclined surfaces of the pallets, is acted on by the impelling force of the weight communicated through the train of wheels.

Dead-beat Escapement.—Fig. 4 represents this escapement. The form of the pallets constitutes its peculiarity. The surface of each pallet is partly a circle, with the point

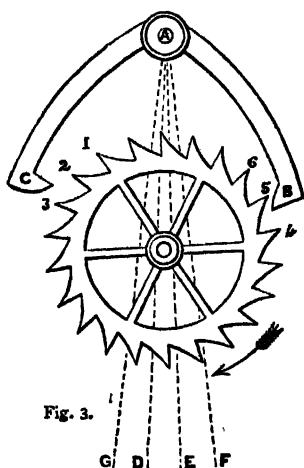


Fig. 3.

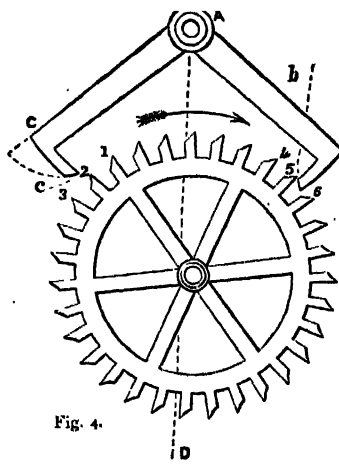


Fig. 4.

of suspension for its centre, and partly an inclined plane. The centre of suspension is at A, and A B and A C represent the legs of the crutch, moving from side to side with the vibrations of the pendulum, whose line of direction is shown by A D. The scape-wheel moves in the direction shown by the arrow; and the position of the whole, as represented, is such that the pendulum, having nearly reached the limit of its vibration on the left hand, the tooth 6 has escaped from the pallet B, having just slid off the inclined portion of its surface, of which the dotted line *b* shows the direction. The tooth 2 now drops against the pallet *c*, and thus the further motion of the scape-wheel is prevented. The pendulum now commences to vibrate towards the right, carrying with it the crutch; the pallet B entering the interval between teeth 5 and 6; and the pallet C is drawn out from the interval between 1 and 2. Meanwhile the scape-wheel stands still; for whilst tooth 2 bears upon the circular part of the pallet C, it neither advances nor recedes, and its moving force is not communicated to the pendulum. As soon, however, as the pallet C has been sufficiently withdrawn for the edge of the tooth 2 to press against the inclined plane, of which the dotted line *c* is a continuation, the wheel is forced to move, and impels the pendulum.

The continued motion of the pendulum having withdrawn the pallet C, tooth 2 is disengaged from it, and the wheel would be able to proceed, were it not for the check it receives on the other side. The pallet B was entering the interval between 5 and 6 whilst the pallet C was being withdrawn, so that, just as the tooth 2 is disengaged from the latter, tooth 5 falls upon the upper surface of the former. During the time the pendulum is moving towards the left, the whole wheel is stationary, tooth 5 being at rest; when, however, the pallet B has been withdrawn far enough for the tooth to rest against the inclined portion of its surface, the wheel moves on. Tooth 5, being disengaged, will take up the position of tooth 6, on the complete withdrawal of the pallet B and the arrival of the pendulum at D.

GARDENING.—XXXVIII.

THE KITCHEN GARDEN.

Rue.—This is a perennial evergreen undershrub, and well known in most parts of the country by its peculiar odour. The leaves are gathered as a medicinal simple; an infusion is made and drank in the morning, fasting, which is said to correct foulness of the stomach. It is readily propagated by seeds, cuttings, and slips, of the young shoots, in March, April, or May, planted in poor soil, in a shady border, and watered till it is well rooted; after which it will continue in perfection for many years. It should be now and then cut down, and it will furnish plenty of leaves and young shoots. Running to seed not only weakens the plant, but shortens its days at the same time.

Sage.—This is a perennial evergreen undershrub, rising about two feet high, with wrinkled green leaves, or tinged with a dusky purple. The flowers terminating the branches in long spikes are of a blue colour, and appear in June and July. The leaves are used in stuffing and sauces, and to improve various articles of cookery. The varieties are the red, the green, the small-leaved green and the broad-leaved. The red and green are the most in favour, as being the most agreeable in flavour; but the small green is considered the best for decoctions, and the broad-leaved the most efficacious for medicinal purposes; however, any of the sorts may be used as substitutes for any of the others. All the sorts may be propagated, either by slips or cuttings of the preceding or present year's growth. The outward shoots are the best, and should be cut off about six inches long, and the lower leaves detached, preserving the upper ones entire. They should be planted in April, May, or June, half their depth in a shady border, six inches apart, and watered. They will soon strike root, and advance in growth; and if any spindle up into flower-stalks, such parts must be cut down, and the plants will shoot out strong and stocky, for use the same year. In gathering sage for use, the young side and top shoots should be cut neatly off, being careful not to cut them too close, and particularly towards winter. In July the plants, both young and old, should be formed into regular heads, by cutting away disorderly parts, and decayed flower-stalks. They must be kept clear from weeds by hoeing the ground amongst the plants. A new plantation should be made every two or three years, as may appear necessary, by the plants becoming naked and decayed.

Savory.—There are two kinds of savory cultivated—*summer* and *winter*. The latter is a hardy perennial undershrub, rising from twelve to twenty inches high, the shoots of which are furnished with two narrow stiff leaves, an inch long, placed opposite each other at the joint, from which a few small leaves proceed in clusters. It produces whitish flowers in May and June. The former is a hardy annual, the branches of which are slender, erect, and about a foot high; the leaves are opposite, and about an inch long. It flowers in June and July. The winter savory is propagated by slips and cuttings of the young side shoots, which may be planted in any of the summer months in a shady border, and watered. They will soon advance in branching growth, when they may be set out, either to form a close edging, or singly fifteen inches apart. The summer savory, as we have already stated, is an annual, and is always raised from seed, which should be sown broadcast, and raked in; and the proper time is March or April. As soon as the plants are up, they must be thinned out to eight inches apart every way. This herb will be ready for gathering from June to October, when a store may be gathered, and dried for winter use.

Scorsonera.—This is a hardy perennial, rising from two to four feet high, with a few embracing leaves, and is branched at top; the lower leaves are linear, eight or nine inches long, and end in a sharp point. The flowers appear in July and August, and are of a yellow colour. The root

is carrot-shaped, and at top about the thickness of a man's finger, but is tapered off to a very fine point. As regards its use, we have merely to say that after the outer rind is scraped off, it is steeped in water, in order to abstract a part of its bitter flavour. It is then boiled or stewed in the manner of carrots or parsnips. The roots are ready for use in autumn, and continue in perfection till the following spring. This plant is propagated by seed, which must be sown every year, for although it is a perennial plant, its root continues good only one year, consequently it must be treated as a biennial. An open compartment of deep light soil should be allotted for this plant. In March, April, or May, the ground should be well dug, and the seed immediately sown in drills, ten inches asunder, and for every thirty feet of drill, one ounce of seed will be required; it must be covered over about half an inch, and when the plants are up about three inches high, they must be thinned out to six inches apart. In dry hot weather they must be copiously supplied with water. In August and September, the roots will have attained a good size, when some of them may be taken up for present use. The remaining part will perfect their growth in October, and continue good all the winter, and part of the following spring. A portion should be taken up before hard frost sets in, and kept in sand for winter. The old plant left in spring will shoot up and produce ripe seed in autumn.

Sorrel.—This is a perennial plant, with scaly bulbous articulate roots, and ternate obcordate leaves; the flowers appear in April and May, and are of a pale green colour, rising singly from the root. The leaves form a grateful addition to salads, and communicate an agreeable relish to dishes of greens. This plant delights in a moist soil and shady situation, and is propagated by dividing the roots, and that any time in the former part of the summer. By cropping the herb of a part of its foliage two or three times in the season, a supply of young leaves will be obtained from April till October.

Savoy.—The character of distinction between this and the other close-headed kinds of cabbage is its rugged leaves, and between it and the Brussels sprouts by its cabbaging in large, full heads. The savoy comes into use in November, and, if it escapes the frost, continues till it is succeeded by the borecoles. The varieties are the green, the dwarf, the yellow, the round, the oblong, and the conical. The green savoy should be sown for autumn use, it being too tender to depend upon to stand the winter. The dwarf savoy is much hardier, and will bear the winter frost, by which its flavour is much improved. It is most suitable for the table, from its small size; and where the whole tribe is cultivated, this must be considered the second in succession. The yellow savoy is the hardest, and is equally as good-flavoured as the others, and by it we are enabled to continue them through the winter. The savoy is raised by seed, and for a bed containing thirty-six square feet, half an ounce will be sufficient. An open compartment of light, rich earth should be chosen for the seed bed. If the ground be poor and exhausted, it should be manured. The seeds of the different sorts should be sown at four different times, in order to have a succession from autumn to the end of the winter. The first sowing must be made about the latter end of February for savoy to come in during the months of August and September; and a second towards the last week in March for a main autumn and winter crop; a third about the middle of April, for a successional winter crop; and a fourth in the middle of May, for a crop to come in towards the spring, and to stand longer before they run. The ground should be well dug and set out into beds four feet wide, and the seed sown and raked in about a quarter of an inch deep. When the plants are up two inches high, if they stand too thick, they should be thinned out regularly to three inches asunder, and those should be taken to other ground and

pricked out thereon, at a distance of four inches asunder in every direction, and both these and those on the seed-bed well watered. They must stand four or five weeks to grow stocky, when they may be planted out to their final situation, each crop in succession, according to its time of sowing—namely, the first sowing in May, the second in June, the third in July, and the fourth in August. They should be planted into rich open ground in rows; for the lesser sorts and late crops, two feet apart and eighteen inches asunder in the rows; and for later and full crops, two feet each way. Showery weather should be taken advantage of if possible, otherwise the plants must be watered immediately. In taking up the plants the roots should be examined, and if clubbed or knotty, the protuberances must be cut off close. Should ground be scarce, savoy may be planted between the rows of beans, which will be out of the way before the plants want the ground. As the plants advance in growth, they should be kept clear from weeds, and the soil stirred frequently about their roots, and at the same time a little drawn up to their stems, which will assist their growth and successively bring them to full maturity in September, October, November, and December.

Salsify.—This is a hardy biennial, with a long, tapering, fleshy white root, the herb smooth, and rising three or four feet high. The leaves much resemble those of the leek; the flowers, which are of a dull purple colour, close soon after mid-day; and the seed is remarkable for its long feathery crown. It is boiled or stewed, like carrots, and is of a sweet, mild flavour. The stalks of one year old plants are sometimes cut and used as asparagus. The salsify requires the same culture as the carrot, only that the carrot must be taken up in winter, while this may remain in the ground, except a few to be ready in frosty weather.

COOKERY.—LXXX.

FRENCH DISHES, ETC. (continued from p. 151).

Queue de Bœuf à la Purée (Ox-tail prepared as a Purée).—Cut the ox-tail into short pieces, soak them in water for a short time, and cook them in a stewpan with slices of bacon and minced beef, or veal, the meat being arranged at the bottom of the vessel, and the pieces of ox-tail laid on them. Put in with them three onions, the same quantity of carrots, parsley, thyme, chives, and cloves. Also add a sufficient quantity of salt and pepper to season it. Place the stewpan over a very gentle fire, until the contents are cooked. Then place the pieces on a dish, and cover them with *purée de pois*, or *purée de lentilles*.

Queue de Bœuf à la Sauce Tomate (Ox-tail with Tomato Sauce).—Dress an ox-tail in the manner directed above, and serve it with tomato sauce.

Queue de Bœuf en Matelote (Ox-tail en Matelote).—Chop up an ox-tail into a number of pieces, and simmer them in stock broth until half ready. Then put a spoonful of flour in a pan, with a little butter, and heat them over the fire till they turn brown. Add to it some of the stock broth in which the ox-tail was cooked, and when dissolved place with it the pieces of ox-tail, together with a dozen onions, some parsley, chives, thyme, cloves, salt, pepper, and two glasses of white wine. Place the stewpan on a gentle fire, and when the onions are sufficiently cooked, arrange on a dish some pieces of bread cut up small, or some thin slices fried in butter, place on them the portions of ox-tail, and cover them with sauce before sending to table.

Queue de Bœuf à la Sainte Menchould.—Divide an ox-tail into two, and chop the thick portion into three pieces of equal length. Cook them in the manner directed for *queue de bœuf à la purée*. When ready, cover the pieces with a mixture of chopped parsley,

chives, and salad oil, seasoned with salt and pepper. Then cover them with bread-crumbs, and grill them over a clear fire.

Gras-double Grillé (Tripe Grilled).—Steep some tripe in water, and stew it with onions, carrots, thyme, bay-leaves, and parsley, together with salt, pepper, and cloves. When sufficiently cooked drain it, and cut in square pieces. Then chop up some parsley and chives, and mix them with salt, pepper, some dripping, or melting butter. Add also the juice of a lemon, and mix the ingredients together. Dip the pieces of tripe in this paste, cover them with bread-crumbs, grill them, and send to table with *sauce piquante*.

Gras-double à la Sauce Robert (Tripe with Sauce Robert).—Prepare some *sauce Robert*, and when half made put into it some tripe cooked as directed above, and cut in small pieces. Boil them together for half an hour, and send to table with a spoonful of mustard.

Bœuf à la Champenoise (Beef dressed in the Champagne manner).—Boil in a pan a piece of breast of beef until half done, then remove it from the vessel, and let it drain until it becomes cold. Lard the meat well, and cover it with seasoning herbs cut as small as possible. Then put it on the spit before a moderate fire until done. While the meat is getting ready, prepare a mixture of onions chopped up small, grated lemon-peel, nutmegs, salt, pepper, with stock broth, or *jus*, and vinegar. When the meat is done, it is to be sprinkled with this mixture.

Côte de Bœuf à la Marseillaise (Rib of Beef in the Marseillaise Manner).—Put a rib of beef in a pan over a quick fire, with four spoonfuls of salad oil. Turn it frequently, until the meat becomes sufficiently brown, then partly remove the pan from the fire, that it may continue to cook at a gentle heat. When sufficiently done, place the meat on a dish, and keep it in a warm place. Then cut some large onions in half, and then into thin slices, and cook them in a pan of hot oil, until they become sufficiently brown. Then add some stock broth, with vinegar, or mustard, and season with salt and pepper, and when ready, pour it over the rib of beef.

Queues de Mouton à la Purée (Sheep's Tails in Broth).—Dress them over the fire with slices of bacon and mutton, and season with herbs, salt, pepper, and nutmeg. Some carrots and onions cut into slices must also be added. When partly done, add some stock broth, and continue to cook them at a gentle heat. Place them in a dish when done, and pour over them some *purée de lentilles*, *purée de haricots*, or *purée de pois*, to which the gravy at the bottom of the pan must be added. If preferred, *sauce tomate* may be employed for this purpose.

Queues de Mouton Grillées (Sheep's Tails Grilled).—Take some sheep's tails cooked as previously directed for *queues de mouton à la purée*, and cover them with oil, dripping, or butter, and afterwards with bread-crumbs. Grill them over a slow fire, and serve them with a *ravigote*.

Pieds de Mouton à la Poulette (Sheep's Trotters).—Take some sheep's trotters, steep them in hot water, and remove all the hair that may remain on them. Cook the trotters in a stewpan with *blanc* at a very gentle heat. When ready, remove them from the pan, and take out the bone. Then add to the *blanc* in the stewpan some mushrooms cut into quarters, with some parsley chopped up small, and also a little stock broth, with butter, or which is preferable, a spoonful of *jus blond*. Season them with pepper, salt, and nutmeg. Then place the trotters in the stewpan, and warm them up. Before sending to table, remember to add a few yolks of eggs beaten up, and some lemon-juice, or a little vinegar.

Blanc for the Preparation of the above, and other dishes.—Put in a stewpan four ounces of bacon cut up, the same quantity of dripping, and two ounces of butter. Add also two onions cut in small squares, and the same

number of carrots cut up in a similar manner, and a cupful of water, or stock broth, which is preferable, with the juice of one lemon. Season the mixture with pepper, salt, bay-leaves, and cloves. Put the pan on the fire, and stir it continually until the fat and bacon have melted, and the watery portion of the preparation has evaporated. Then add some water, make it boil, and remove any scum that may float upon the surface.

Côte de Bœuf à la Fermière (Rib of Beef dressed in the Farm-house Manner).—Take a rib of beef, and cover it with slices of bacon well seasoned with herbs. Then put in a stewpan a little butter, and let it melt over the fire, and place the rib in it, with some salt and pepper. Then expose the meat to the heat of a quick fire. When sufficiently browned on both sides, remove the stewpan farther from the fire, so that it may continue to cook at a gentle heat. When sufficiently done, remove the meat, and place it on a dish. Then take some small cucumbers, slice, and cook them at a gentle heat in the gravy in the pan, and add to the meat before sending to table. If preferred, the gravy in the pan may be beaten up with a spoonful of *marmelade de tomates*.

Côtelettes de Mouton à la Purée d'Oignons (Mutton Chops with Onion Broth).—Fry the chops in butter, and pour in some stock broth; then add some onions, carrots, parsley, thyme, basil, and other seasoning herbs, and season with salt, pepper, and cloves. Simmer the materials over a slow fire, then arrange them round a dish, and pour into the centre some *purée d'oignons*.

Côtelettes de Mouton à la Purée de Lentilles (Mutton Chops with Broth of Lentils) are prepared in a similar manner to the last, *purée de lentilles* being substituted for *purée d'oignons*.

Côtelettes de Mouton à la Sauce Tomate (Mutton Chops with Tomato Sauce).—Dress the mutton chops in butter, and add some stock broth, with the vegetables and herbs directed for *côtelettes de mouton à la purée d'oignons*; then remove the mutton from the pan when ready, and boil down the stock broth to the consistence of a sauce, and allow it to cool. Then pour it over the mutton chops, and cover them with bread-crumbs. When cold, beat up four eggs in the remainder of the sauce, moisten the mutton chops with it, and again apply more bread-crumbs reduced to fine powder, and grill the meat over a moderate fire. Send the chops to table with tomato sauce.

Haricot de Mouton.—Put some butter in a stewpan with some flour, and allow it to become brown; add some shoulder of mutton cut into small pieces, with some stock broth, seasoned with salt, pepper, cloves, onions, and herbs. When the meat is half-done, fry some turnips in butter until they have become brown, and add them to it. Before sending to table, a sufficient quantity of burnt sugar should be added to the liquid to colour it.

Poitrine aux Epinards (Breast of Mutton with Spinach).—Cut the breast of mutton into small pieces of an equal size, and dress them with bacon, ham, or meat, as directed for *poitrine de mouton à la Sainte Menchould*. When sufficiently done, remove the meat, and boil down the contents of the stewpan into a jelly. Glaze the meat with it, and send it to table on a dish containing spinach. If preferred, the meat may be grilled before being served up.

Poitrine de Mouton à la Sainte Menchould (Breast of Mutton with Bacon).—Place at the bottom of a stewpan some slices of bacon; lay over them some pieces of ham cut up into small portions, or thin slices of meat if preferred. Over them lay a breast of mutton, with some onions, carrots, seasoning herbs, salt, pepper, and cloves; add a little stock broth, and simmer over a moderate fire. When sufficiently done, remove the bone, and season it with salt and pepper. Then coat the meat with butter made liquid at a low temperature, and cover it with bread-crumbs. Grill it at a moderate heat, and serve it up with *sauce piquante*.

NUTMEGS AND MACE.

THE best nutmegs are obtained from the nutmeg tree, or *Myristica moschata*, which is a native of the Moluccas. The best variety of tree, which yields a small round nutmeg, is called the "queen nutmeg." The nutmeg tree is also cultivated in Sumatra, Java, Singapore, the West Indies, and some of the islands of the Indian Ocean. The nutmeg is the fruit of the kernel of the nutmeg tree; it is surrounded by a shell, and enclosed in a covering or arilode, which is the mace.

Nutmegs are generally of a roundish form. There is a long-shaped variety yielded by another tree, but it is of inferior quality. The best nutmegs are covered on their outer surface with irregular net-shaped furrows. Inside they should be of a greyish red colour, intersected with veins of a dark brown tint; they should possess a fragrant smell, and a warm and aromatic taste. In selecting nutmegs, the preference should always be given to the heaviest kind, and to those that feel firm when handled, since they are often punctured with holes and boiled in water to extract the essential oil they contain, the openings thus made being afterwards filled up so as to conceal them. When nutmegs have been treated in this manner, they may be detected by their lightness and diminished firmness when handled.

Nutmegs are very liable to be attacked by what is called the "nutmeg insect," and for that reason require very great care in drying them when first gathered. This is done by exposing the nutmegs on a grating to a heat not exceeding 140° of Fahr., produced by a wood fire beneath them until perfectly dry, this process usually taking about two months before it is finished. To prevent nutmegs from being attacked by insects, the Dutch are in the habit of coating them with lime, but this is found to be injurious to their flavour. The best way of preserving them is to let them remain in the shells which form their natural covering.

Nutmegs are chiefly employed, owing to their flavour, as a condiment or spice, for culinary purposes. They are also used, when grated, as a domestic remedy for bowel complaints and similar affections, in doses of half a tea-spoonful mixed in milk. When nutmegs are distilled with water an essential oil is obtained, to the presence of which the properties of the nutmeg are due, from nine to ten pounds being yielded by each hundredweight of nutmegs. This oil, owing to its perfume, is much employed for scenting soap and similar purposes.

When nutmegs are crushed into a paste, heated by steam, and subjected to pressure in bags under a powerful press, a fixed oil of a yellow colour is obtained, which possesses the odour of the nutmeg. When this oil is cold it assumes a firm consistence, and is known as the oil of mace; it is imported into England in the shape of small bricks covered with leaves. Cakes of fixed oil are sometimes imitated with animal fat, flavoured with nutmegs and saffras. The real oil may be distinguished from them by being soluble in four times its weight of alcohol. This oil is a powerful stimulant, and in India is used as an embrocation in cases of rheumatism.

Mace is the membranous substance which encloses the nutmeg, and is of a bright, reddish yellow colour. It is dried by exposing it to the heat of the sun for a few days, and then packed in bales, in which it is pressed together as close as possible to preserve its fragrance and shape. When mace is chewed it yields a warm pungent taste, slightly bitter, and it possesses an agreeable aromatic odour. The odour and taste of mace are milder than those of nutmegs, and on that account are sometimes considered to be more agreeable. In selecting mace for household use, the preference should be given to that kind which possesses the brightest colour, and also to the smaller pieces.

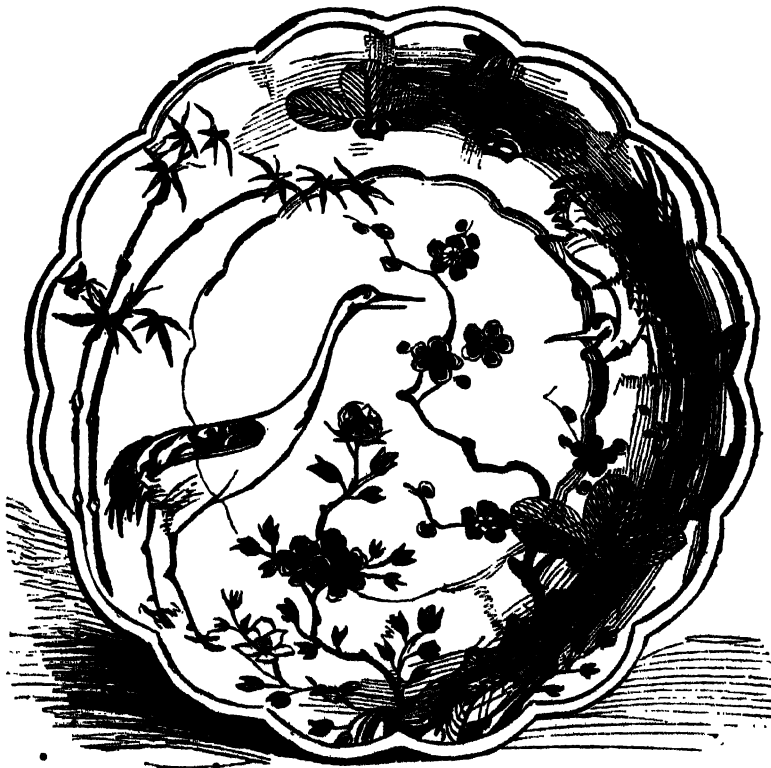
CHINA AND STONE WARE.—II. PORCELAIN.

THE common name for this ware is China. It is known as "hard or soft," and is transparent. The country in which it was originally made was China, where it was known to have been manufactured as early as B.C. 163. The Portuguese traders seem to have been the means of introducing it into Europe, and they gave it the name *porcelain*, signifying a little cup. In 1631 porcelain dishes were imported generally into England, although the ware had been known here since 1586, under the name of "Gombron," from its having been first imported from that place by the East India Company. The Chinese porcelain is composed of the finest paste, and it can be exposed to a greater degree



URN, CUP, AND WATER-BOTTLE (CHINESE PORCELAIN).

and one of beautiful white, covered with tiny crimson or gold spots, which are highly prized; and violet china covered with green spots, is very precious, a small basin being worth several hundreds of pounds. The pure white china comes from Fokien. The blue and white china is from Nankin; and Nankin china is considered next in antiquity to that of Fokien. For some years the Chinese kept the composition of their porcelain a profound secret; and as in China every trade has its idol, we find thousands of little gods in our museums, among which may be seen the little corpulent figure of Pousa, the canonised martyr of porcelain. It appears that a Chinese emperor once ordered a service of porcelain to be manufactured of a particular form and kind, to make which was con-



DISH WITH HERONS (ANCIENT JAPANESE).

of heat without injury than any other kind, Dresden excepted. The best Chinese ware, which is very exquisite, is not allowed to leave China; and a very fine yellow porcelain is kept exclusively for the use of the Emperor. There are among Chinese porcelain a crimson ware,

considered by all the most clever workmen to be impossible. Effort after effort was made without success. To entreaties were added threats, and to threats the lash, but all to no purpose; and in despair, Pousa, one of the workmen, threw himself into the furnace, where he was,

of course, consumed. The porcelain, however, on being taken out of the furnace, was found perfectly to the taste of the emperor, therefore Pousa was canonised, and now figures in the form of the little fat idol.

Blue was the first colour used in the decoration of Chinese porcelain, and when prepared from lapis lazuli, is of a much finer colour than that produced by smalt. When a pale buff colour is seen in the necks of bottles and on the backs of plates, it denotes a good specimen of Nankin china; and the fineness of the blue and the perfection of the white indicate antiquity.

At King-te-tching was made the old sea-green and crackle china; the latter appears as if cracked in every direction, but the Chinese appear to be ignorant of the cause. When these cracks appear in small regular figures, the article is of great value, and specimens of this china are now becoming scarce, as it is no longer imported.

The old green enamelled china and the fine egg-shell china are considered perfect, as far as regards their lightness and transparency. The ruby colour is very rare, excepting on the reverse side of the finest plates. The inferior modern porcelain is made at Canton.

However beautiful the Chinese porcelain may be, it has never, in point of form, arrived at the perfection of the commonest Greek ware; and the Chinese style of ornament has remained the same for the last five hundred years, without improvement—ugly in form and inferior in drawing; but figures of birds are sometimes very finely executed in China.

The mark on the fine blue-and-white china is composed of words, as is that on the porcelain of Nankin and Fokien. *Yung-lo* means 1403 and 1425; and, to prove how stationary has been the ceramic art in China, specimens are made at the present time precisely the same as those of 1403—no difference in material, glazing, or colouring. The ancient sea-green porcelain occasionally bears the mark *tching-yu* ("precious jewel").

Japanese Porcelain.—The porcelain of Japan greatly resembles that of China; but the white is more brilliant, the patterns more simple and natural, and it has fewer specimens of dragons and other monsters. This porcelain does not stand the fire so well as that of China, but it is difficult to distinguish the one from the other, as they both occasionally bear the same ornaments, although flowers and mosaics are most frequently the patterns on Japanese porcelain. The old ware of this country is curious in design, and may be known by its embossed patterns of blue and red on a white ground; it has also a sort of open-work pattern filled up with glaze, and a lacquered ware, covered with devices in mother-of-pearl upon a light brown ground. The red, unglazed, stone-ware teapots, covered with raised patterns formed of rice painted and gilt, has the appearance of Dresden porcelain.

European Porcelain.—At Dresden this ware was first made, in imitation of that brought from China by the Portuguese, in 1518. For two hundred years the efforts to make porcelain in Europe had been in vain, till at length a German chemist, named Böttcher, accidentally found a composition in his crucible resembling porcelain, and in time, by perseverance, he succeeded in the manufacture. The porcelain was at first only red, through being made of brown earth; but, by another accidental discovery, white earth was found, by a stroke of a horse's foot, and in the seventeenth century Europe had its white porcelain.

In 1720 very splendid specimens of Dresden porcelain were produced by a workman named Höroldt, and this is known by its beautiful gold borderings and medallions, with Chinese figures and flowers.

The Dresden china of 1731 was further improved by the work of a sculptor, named Kändler, who introduced garlands of flowers, bouquets, vases, and animals, and those beautiful groups of figures which so well mark Dresden china; and paintings copied from works of the

best artists further added to its beauty and perfection. The finest Dresden china is considered to be that of Kändler. His figures and groups are conspicuous for their great beauty; the lace-work, flowers, honeycomb vases, animals, birds, and candelabra of this talented workman demonstrate the perfection to which the ceramic art has been brought. The old Dresden generally bears the mark of two crossed swords. The plain white Dresden is not marked, excepting by an Oriental symbol on some pieces.

About 1760 many rival factories sprang up in various German towns. Vienna has produced splendid specimens of porcelain. It is thicker than that of Dresden, and generally of a very fine grey colour; the painting is not so good, but it is distinguished by its splendid raised gilding.

The porcelain of Berlin is second only to Dresden, and specimens will be found equal to it; therefore this china requires minute inspection to distinguish it from Dresden. The Berlin factory was founded in 1751, by a merchant who bought the secret from some workmen at Höchst; and Frederick the Great, seeing that the manufacture of china was becoming a staple article of commerce, caused all the best Dresden artists to be sent to Berlin, and thus for a time deprived Dresden of its celebrity, but it accounts for the similarity of the ware of the two cities. The marks are, however, distinctly different, and will serve as a guide.

The porcelain of Russia, Holland, Denmark, and Switzerland is not valued.

Höchst porcelain has fine statuettes, and is famous for its deep blue, violet, and red colours, but the paste is not equal to that of Dresden.

DOMESTIC MEDICINE.—LII.

SORE THROAT.

THERE are few disorders more common than a degree of sore throat, and few complaints differ so much in their significance. Sore throat may simply be nothing more than a cold, or it may signify scarlet fever. It may admit of easy relief, or it may require skilled advice. We here intend to describe sore throats not connected with scarlet fever. But there is a very important point at the outset—How are we to know whether a given case of sore throat indicates scarlet fever or not? Scarlet fever rarely, if ever, exists without sore throat, but sore throat is not scarlet fever. Scarlet fever may be expected if the patient is a young person, or one that has not had scarlet fever before; if the illness has set in with sharp feverishness, accompanied with sickness or diarrhoea, and these symptoms are followed in twenty-four hours, or thereabouts, by a red rash on the body, or the forearms, or lower part of the stomach; and if scarlet fever exists in the house of the patient, or of those with whom he has been in contact. There is, besides this, the sore throat of diphtheria, of which we have already spoken, and which is known by the tonsil of one or both sides being covered over with a white leather-like covering, and by a considerable depression in the patient, attended with fever. Such cases demand the best advice that can be had. Excluding cases of scarlet fever and diphtheria, we will describe two principal kinds of common sore throat.

The principal seat of sore throat is in the tonsils. There is one tonsil at each side of the back of the throat. The tonsil is a gland which secretes mucus fit for the lubrication of the fauces, or throat. It varies much in size, and in some children, and young persons who are not very strong in constitution, it becomes enlarged; or both tonsils become permanently more or less enlarged, so as to extend in towards the middle of the throat. On the surface of each tonsil are twelve to fifteen orifices, which

lead to little crypts or follicles in the substance of the gland, where the mucus is formed. These anatomical and physiological particulars will help our readers to understand what happens in the two principal kinds of sore throat which we are going to describe. In the one case the body of the tonsil is inflamed, and the inflammation may go on to the formation of matter. This is the ordinary case of—

Quinsy, to which some people are subject. Such persons, after getting cold or wet, have a shivering, or a certain amount of chilliness, and feel a sore throat, which impedes swallowing, and, after a time, gives a peculiar sound to the voice. Looking into the mouth, one sees the tonsil, one or both, to be swollen, perhaps very prominent and red, the swelling extending to the roof of the mouth. There is along with this condition a great deal of general poorliness or *malaise*. The tongue is white, there is no appetite, and the whole system is feverish. Sometimes the feverishness is very sharp, and disproportionate to the size and importance of the part affected. This state of things may go on for several days, perhaps for a week. At the end of this time the swelling suddenly breaks, and the patient passes rapidly into comparative comfort and health. A medical man may shorten this period of suffering by the use of various means for hastening the formation of matter, or giving it vent if it has already formed. People who are beyond the reach of medical advice, and are suffering from symptoms of quinsy, should use the following measures. The throat should be gargled very frequently with warm water; a warm linseed poultice should be applied every three or four hours externally; the food must be of a fluid nature, such as milk or beef-tea, and even this will be swallowed with difficulty. Cold must be avoided, and the patient should rest a good deal in bed, or in the horizontal posture. The following mixture may be of use :—

Chlorate of potash	1 drachm.
Spirits of nitre	2 drachms.
Simple syrup	2 drachms.
Water,	8 ounces.

Mix. An eighth part every four hours.

Persons suffering from this form of sore throat should be careful to avoid exposure to cold and damp. When they have the least sore throat, they should rub the outside of the throat with a little hartshorn and oil. The tendency to this kind of attack disappears or greatly diminishes after the age of forty.

The second kind of sore throat is far more common than the above. The same poorliness may be experienced, and the throat may be felt to be sore, but sometimes this soreness is very little complained of. There is much the same feverishness, but the nature and course of the disease are quite different from the ordinary form of quinsy above described. We have said that the tonsil contains on its surface the openings of twelve or thirteen ducts, which lead to little follicles. Now in this form of sore throat, numerous little white spots are visible on the tonsil. For the most part, these white spots correspond to the opening of the ducts. The white spots consist of matter of cheesy consistence, sometimes as large as a small pea, and this is evidently formed by an inflamed or congested state of the mucous membrane of the ducts. There is no tendency to the formation of matter as in the large, red, swollen tonsil above described; but these spots may be numerous, and may be large enough to coalesce, and form a more or less continuous layer, covering the tonsil. In other words, while common quinsy seems to be an inflammation of the body of the tonsil, this kind of sore throat seems to be an inflammation of the ducts running through the gland. It may go on for a considerable time, if neglected, but will generally get soon well under proper medical advice, which should

always be sought, if practicable. It is not uncommon for this kind of sore throat to affect various members of one and the same family, living in the same house, whereas the inflammation of the tonsil described above as quinsy, affects only certain persons, and rarely two in the same house at once. This kind of sore throat attacks people of all ages and children.

Causes.—It sometimes appears to be caused by colds, but at other times it seems as if there were something unhealthy in the atmosphere or drainage of houses, affecting a number of the inmates.

Treatment.—The disease is not generally serious if properly treated. A medical man should always be consulted if one be within reach; if not, the important points to be considered are keeping the patient in a comfortable temperature and a well-aired room, cleansing the mouth and throat frequently with gargles of warm water, and administering simple, fluid, nourishing food, such as milk and beef-tea. The following mixture will generally greatly advance the patient's recovery :—

Chlorate of potash	1 drachm.
Tincture of sesquichloride of iron ...	20 minims.
Spirits of nitre	2 drachms.
Simple syrup	2 drachms.
Water	8 ounces.

Mix. One-eighth part every four hours. If there is much head-ache, omit the iron.

Chronic Enlargement of the Tonsils.—It is not uncommon in young patients, after inflammation of the tonsils, to have them remaining large, and reddish, and sensitive, obstructing the swallowing, and making a peculiar noise in sleep. If such a condition does not yield to ordinary remedies, and results in frequent attacks of sore throat, it will be well to seek surgical advice and assistance. Often, however, a change of air, tonic remedies, and the application occasionally of a little hartshorn and oil to the outside of the throat, will render the throat much stronger and less sensitive. Cod-liver oil, administered in the dose of a teaspoonful or two, night and morning, will be beneficial in these circumstances.

CAGE-BIRDS.—XII.

THE SONG THRUSH (*Turdus musicus*).

THRUSHES are found in most European countries. In Britain they remain all the year, but in Germany they are migratory. In autumn they collect in great numbers, and seek warmer climates, returning during the latter end of March. They seek their food in gardens, lawns, and meadows, and are found in shrubberies, plantations, and small woods. This bird is the throstle or mavis of the old poets.

The length of the thrush is about eight and a half inches, three and a half of which belong to the tail. The beak is brown, the under part of the lower mandible being yellowish at the base; irises, nut brown; throat, yellowish white, with a black line on each side; sides of the neck and breast, pale reddish white, with variegated dark brown spots; belly, white (covered with oval spots); upper part of the body, olive brown; feet and legs, slate colour. The breast of the female is lighter, and the spots on the wing-coverts smaller. Her nest, which is tolerably large, is formed of moss, blended with earth or cow-dung. It is built on the lower branches of trees, and she prefers being in the neighbourhood of water. The eggs, from three to six in number, are light blue, with varied small and large dark brown spots. The young birds are speckled with white on the upper part of the body.

The first brood is often ready to fly by the end of April. By obtaining nestlings, and carefully rearing them

on fig-dust and water made into a moist paste (or on bread and fresh milk, as a change), Dr. Bechstein says they can easily be taught to perform airs.

When wild the thrush lives on insects, worms, snails of various kinds, fruit, and berries; in the grape countries on ripe grapes. In confinement, various kinds of food are given by different persons. Having named the following, owners of thrushes can select those kinds their birds prefer:—German paste, fig-dust, grated nut of liver, lean beef cut in very small pieces, and snails. Great care should be taken that the water is replenished, and the pan cleansed each day. Fresh gravel should be placed on the bottom (after the drawer has been pulled out and cleaned) three or four times each week.

The same kinds of cages are best for both thrushes and blackbirds. The tops and backs wood, the sides and fronts open, either formed of wire or circular wooden bars, with boxes fixed on each side to hold food and water. The fronts and backs are about sixteen inches wide, and the sides eleven inches. The tops resemble the skylark cages, being raised in the centre.

The song thrush is the charm of our woods, and is highly valued in confinement. It enlivens the woods by its melody, and is a favourite when caged for the beauty of its song.

Mr. Yarrell describes it "as a general favourite, from the prevailing opinion that of our larger singing birds the thrush is the best, possessing to a greater extent than others a combination of the three requisites—power, quality of tone, and variety. Its song is also continued through a large portion of the year, beginning early in spring and continuing it at intervals till autumn."

Mr. White's opinion of this bird was, "that whenever there was incubation there was music; and the early spring song of the thrush is an equally true indication of an early breeder."

The missel, rock, solitary, blue, and reed thrushes, may be fed and treated in a precisely similar manner to the song thrush.

THE HOUSEHOLD MECHANIC.—LVI.

BRICKLAYING (continued from p. 94).

THE brickwork which we have described in a former paper was of a character suitable for out-door purposes, or any situation where considerable strength and resistance to atmospheric influences were required; but for internal walls or partitions it is often better to have work of less thickness, so as to effect a saving both of space in the rooms and of the material employed. For such purposes as those mentioned, or, indeed, for many outdoor situations where no great strength is required, the kind of brickwork known as "brick-nogging" is exceedingly useful, and as it is very easily and quickly put together, it is altogether suitable for adoption by the tyro. As will be seen by Fig. 8, page 93, vol. iv., brick-nogging consists of courses of brickwork laid between uprights of wood, which must, of course, be equal in depth to the thickness of the wall. Thus, if the bricks are laid flat, in the usual manner, the wooden uprights should be four and a half inches in thickness, while if the bricks are laid upon their edges (as is very common in this sort of work), the uprights will only be two and a half inches in depth. Besides the upright supports of the work, it is usual in brick-nogging to fit a horizontal bar of rather thinner wood tightly down upon the brickwork at intervals of four or five courses. This is shown at Fig. 8, page 93, where

A, A, represent the uprights and B, B, B, the horizontal bars. These bars are to be cut tightly between the uprights, and bedded in mortar upon the brickwork, when they may be nailed at each end to the upright supports. In the erection of such work as this the ordinary level and plumb-rule are not required, as the wooden supports are first fixed perfectly perpendicular, and these serve as guides for the intermediate brickwork. If brick-nogging be used for out-of-door purposes, it may either be covered with plastering or made quite fair; but should the latter course be elected, the woodwork should be planed, so as to be easily painted, and the joints must of course be smoothed. Such work as we have above described will be of great service to the household mechanic. It often happens that small sheds are required in the garden for tool-houses or various purposes, and although the cost of erecting brickwork is rather greater than that of wood in the first instance, its extreme durability will render it infinitely cheaper in the end, beside which, it may be prettily decorated with either stones or shells, and become rather an ornament to the garden than an unsightly object, such as wooden sheds mostly are.

Besides the varieties of brickwork which have been named, there is one which must here be noticed, because it is required to complete the papers upon the construction of fountains which have already appeared in the HOUSEHOLD GUIDE (p. 97, vol. ii.). The brickwork of these should be laid in cement, as ordinary mortar would be insufficient to resist the action of water and frost. For ordinary purposes, Roman cement, mixed with an equal bulk of sharp, fine sand, will answer perfectly; and it is almost needless to add that this mixture must be used as soon as possible, or it will set hard and become useless. As most fountain basins are of a circular form, some difference of arrangement will be needed for laying the bricks, and these we will now describe.

The first thing will be to determine the size of the intended basin, both with regard to its diameter and its depth. As a general rule about eighteen inches will be deep enough for a basin of four feet diameter. In order to get a perfectly circular form, a block of wood or a post should be firmly erected in the centre of the intended work, and to this should be screwed a horizontal arm of wood which may work freely round the centre, and which should be long enough to reach the extreme edge of the brickwork. This arrangement is shown at Fig. 1. A represents the post in the centre of the basin; B the bar, which is secured to this by the pin C. To this arm a second piece of wood, D, is screwed, so that it may be carried round by the bar B. The method of working this arrangement is sufficiently intelligible. The brickwork, E, is laid so as just to allow of the passing of the mould until the entire circle is formed, and course after course of bricks are thus laid until the required height is obtained. If the edge of the basin is to be covered with earth or moss the enclosing wall may be upright, but if a moulding is afterwards to be worked, the brickwork should be made to follow the outline thereof as nearly as possible. In this case the better plan will be to cut the shape of the intended moulding upon the trammel, as shown in the figure, when the projecting courses may easily be laid as required. Of course, for brickwork which has to resist water and frost—as in such a case as this mentioned—considerable care is required in order to get it perfectly sound, but the tyro will find no difficulty in effecting this if only ordinary attention be given.

In this way the most durable of fountain basins may be

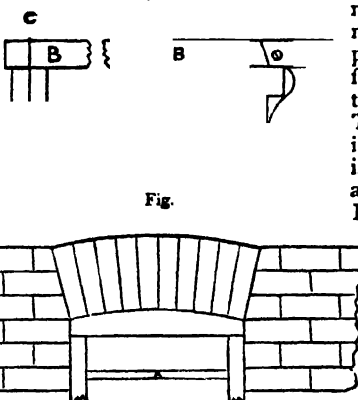


Fig. 2.

made, far better, in fact, than the ordinary cast cement basins often sold for the purpose; and although the undertaking may at first sight appear a rather formidable one for the amateur to attempt, we can assure him from actual experience that it is not a difficult or very troublesome operation.

Perhaps in most cases where openings occur, such as those required for the windows and doorways, the safest plan for the amateur will be to insert a beam of wood to carry the brickwork which has to be placed over them. This, however, is not necessary, and when the extra trouble is not objected to, an arch of brickwork may easily be constructed, which will be both stronger and more durable than the wooden lintel. We need not in these papers describe those arches in which it is necessary to cut the bricks, as the construction of them would be far too complicated for the amateur mechanic. This, however, need not deter any ordinary workman from attempting the formation of those we shall describe, as they may all be built of ordinary square bricks, without any cutting except for the abutments. The two kinds of arch which will be found most useful and practicable are those shown at Figs. 2 and 3, and these are known, the first as the French, and the second as the semicircular forms. Either of these is easy of erection and if required the latter may be varied, as shown at Fig. 4. In each case, before attempting to build the arch, a "centre," as it is technically termed, will be required to support the bricks until the whole of them are in the required position, and the mortar or cement used is sufficiently hardened to secure them and the superincumbent brickwork. In fact, it is usual to leave these centres in until the building is finished, and this is the course most to be recommended.

The construction of the centres is evident from the figures, as they consist simply of ribs of wood cut to the required curve of the arch. These ribs are supported in position by uprights placed against the sides of the opening, and strutted by means of the strips of wood marked A in the figures. As the French form of arch will be that most frequently used, we will describe the method of erecting this first. As will be seen from the figure, certain courses of brickwork will require cutting, so as to form an abutment which may receive the bricks forming the arch, and these must of course be laid before the arch itself can be proceeded with. Particular care should be taken to lay these courses well and soundly, as it is upon these that the actual weight of the arch will rest. When these abutments have been formed, the thickness of each course of bricks forming the arch should be set out and marked upon the centre, when the work may be proceeded with by carefully laying one brick upon each side of the opening; as the line along the top of the work will be much longer than that upon the centre, the joints of mortar or cement must be considerably thicker at the top than at the bottom. When the space for the centre brick is reached, a good quantity of mortar or cement should be placed both upon the two adjacent bricks and upon that which is to form the key of the arch, and the brick last

laid should be driven firmly down into its proper position, when the arch will be complete. For such arches as that described it is not usual to curve the centre more than one inch in each foot of its length, and this will be found to afford ample strength and security. The two other forms of arch figured may be constructed as before described, except that, as their curve is greater, it will be better to lay the bricks the reverse way, that is to say, edgewise, instead of standing them on end. It will be then necessary to use two courses or rings, and if these are well laid they will support almost any weight which can be put upon them. The Gothic arch (Fig. 4) is the prettier of the three, and while it is quite as easy of construction as the others, it will be found very useful when applied to such ornamental erections as summer-houses

or buildings for use in the garden. With regard to their relative strength, the first figured arch is the weakest, and cannot be recommended for openings of over four feet; while the other two may be of any span, and, if properly constructed, will bear any reasonable strain. Where great strength is required, Roman or Portland cement may be used, but for all ordinary work good freshly-prepared mortar will answer every purpose, especially if the bricks are thoroughly well soaked with water before they are laid.

These instructions will enable the household mechanic to erect any building which he is likely to attempt; but there are certain internal portions of a building which are included in the bricklayer's art without mention of which these papers would be incomplete.

In many buildings, especially those which are in damp situations, or which are used for rough purposes, such as sheds or tool-houses, wood floors are unsuitable, both on account of their liability to decay, and because they are not sufficiently strong to resist the great wear to which they are exposed.

In such cases as these, a flooring or paving of good hard bricks will be found to be better than wood, and almost as durable as stone. For paving purposes the hardest stock bricks should be selected, and if well laid they will be found most cleanly in use, and easily replaced should any portion of the floor become damaged.

In laying down paving it is of the first importance to secure a solid foundation upon which the brickwork may rest. The best method of procedure will be to place a layer of concrete, made of lime and coarse gravel, about four inches in thickness, immediately under the bricks. In most cases some inclination in a given direction will be required, in order to throw off any water which may fall upon the paving, and carry it into drains provided for the purpose. This must be remembered in laying the concrete; and all levels or inclinations should be provided for precisely as if it were to be the finished floor. When this has been effected, about half an inch of finely-sifted gravel should be laid upon the concreted surface as soon as it has become sufficiently hardened to bear walking over without disturbance. As a general rule, the bricks for paving should be laid upon their edges; as when laid flat they are exceedingly liable to break. A few bricks should be laid at each end of the work, which will serve

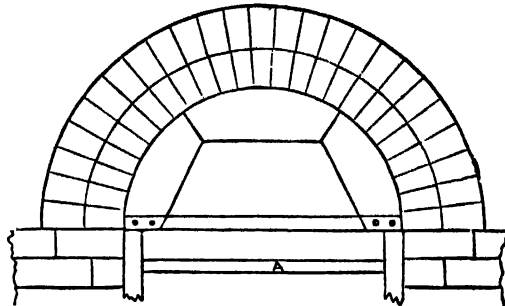


Fig. 3.

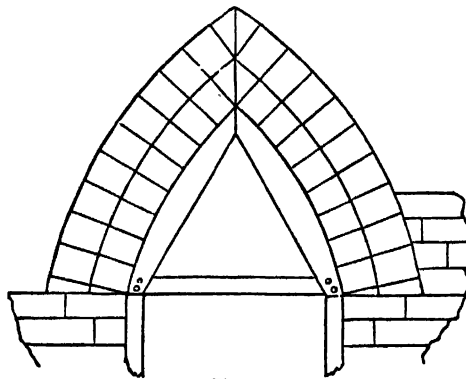


Fig. 4.

to hold the line to which the paving is to be laid. Each brick should then be laid in the required position, and tapped into its place with the trowel. It will be observed that no mortar is to be used, but that the sifted gravel or sand takes its place in this kind of work. When the whole of the paving is thus laid, a sufficient quantity of very soft mortar is to be thrown over the whole surface, so as to quite fill up the interstices between the bricks; and for effecting this a good stiff bass broom will be found very useful. Each part of the paving should then be well rammed down with a block of wood, taking care, of course, not to break the bricks in the operation, which should be performed while the mortar is quite soft. A second quantity of soft mortar should then be applied, so as to completely fill up all the joints, when the whole should be left until the mortar is quite hard, and each brick is firmly fixed in its place. Thus laid, bricks will make a very sound and durable paving. The only care required will be to have a sound foundation, and to carefully break the joints in order to bind the work together. For garden paths, or where the work is seen much, a very pretty effect may be produced by laying different-coloured bricks, so as to form patterns, or what is termed "herring-bone work," as shown at Fig. 9, page 93, vol. iv. This involves a little extra trouble, but it is amply repaid by the very pretty effect produced, if ordinary care be exercised in its execution.

There are, of course, many other matters connected with the bricklayer's art which might have been mentioned and described in these papers, but our object has been to limit our instructions to those which are most likely to be undertaken by all who are engaged in repairing or beautifying the houses in which they reside. It is scarcely to be expected that a tyro would undertake the erection of a large brick building, as that could be done for him at a less cost than he could himself execute it; but, on the other hand, there are many things which he may with advantage build with his own hand; and, in any case, the ability to wield the trowel and lay a few bricks will be found to be a very useful accomplishment, while a knowledge of the method in which such work should be executed will be of greatest service in case workmen have to be employed.

GARDENING.—XXXIX.

THE KITCHEN GARDEN (continued from p. 175).

Seakale.—This is a hardy perennial, with large, radical leaves, more or less sinuated and indented, containing in the axil a bud or rudiment of the next year's shoot. The flower has a rich white appearance, and smells strongly of honey. The whole plant is of a smooth, beautiful, glaucous colour, and covered with a very fine meal. The young shoots and stalks of the unfolding leaves, when blanched by earthing up, as hereafter directed, are the parts to be used, and are not at all inferior to asparagus when dressed in the same manner. They also form an excellent ingredient in soups. This plant is propagated by seed which should be sown the latter end of March or beginning of April, in drills a foot asunder, and the seed dropped in singly, six inches apart in the rows, and the ground immediately raked level. The plants will soon appear above ground, when they must be kept clear from weeds throughout the summer. The soil best suiting the *seakale* is a light, dry, rich, sandy loam, of a good depth. If the soil is not rich, it must be made so by adding some well-rotted manure. The ground for the plantation should be prepared in autumn, by manuring and trenching at least two feet deep; and if the ground is not naturally that depth, and light, it must be made so artificially, by the addition of some good, light, hazel loam and some well-rotted vegetable mould. If the ground is not

perfectly dry, it must be rendered so by effectually draining it, so that no water can stand within at least a foot of the bottom of the bed, for the strength of the plants depends entirely upon the richness of the soil and dryness of the situation. When the ground has been thus prepared, during the winter months until the beginning of March it must be formed into beds four feet wide, with alleys two feet wide; five or six seeds may be sown, two inches deep, within a circle of about nine inches in diameter; or three plants of the last summer's growth may be planted within the same space, inserting them with a dibble, leaving the crowns level with the surface of the ground.

If seeds are sown, when they come up they must be thinned out, leaving only three of the best and strongest plants in each patch. In taking up plants for planting, care must be taken not to break the tap roots, which may be prevented by inserting the spade with which they are taken up into the soil lower than the root, and then, bearing the spade handle down, they will be raised without injury. Attention should be given to the regulating of the plants standing, as they are to be covered, if for forcing, with blanching pots, and both the health and beauty of the crops depend upon their standing at equal distances. They must be kept clear from weeds, and now and then watered, which is all the care they will require until November, when the leaves will be decayed, and must then be cleared away, and the beds covered an inch and a half or two inches thick with fresh sandy earth, that has lain in a heap and been well pulverised during the preceding summer; after which about six inches thick of leaves that have just fallen from the trees should be laid all over the beds, upon which a little soil should be thrown out of the alleys, to prevent the leaves blowing about. In default of leaves, light stable dung will answer, and no more care will be required the first year. In the following spring, the leaves, or whatever the beds are covered with, should be taken off, leaving some of the most rotten part to be dug into the alleys. The beds must then be lightly forked over, and covered with about another inch of the same sort of mould as before. Not any part of the crop should be gathered the second year, though some of the plants will come very strong. The plants must be kept clear of weeds during the summer, and in winter treated exactly as before, only, instead of laying the leaves six inches thick, they must be laid twelve; and instead of soil at the top, lay a little stable litter, just to keep the leaves from blowing about. This must be allowed to remain on until the heads are ready for use, which will be indicated by their beginning to raise the covering. Care should be taken not to remove any more of the covering than where those heads are that are intended to be cut. Being thus treated, the heads will be free and well blanched, and the leaves sweet and free from any unpleasant flavour.

In gathering the crop of *seakale*, cut the young stems when about three inches above ground, care being taken not to injure any of the young buds below the surface, some of which will begin to swell immediately. The covering must be immediately replaced after gathering—and a succession of gatherings will be had for five or six weeks, after which period the covering must be taken quite away, and the ground forked over, which will greatly encourage and strengthen the plants to produce buds the following spring. *Seakale* is generally desired before its usual time of coming to perfection on the natural ground, and no vegetable is more easily forced than this, neither is the flavour of any other improved by it. As soon as the leaves are decayed in autumn, they must be trimmed from the plant, and the ground carefully pointed over, and the tops of the plants covered about three inches deep with fresh light earth, mixed with about the same quantity of coal-ashes. In about three weeks, or according to the time the crop is desired to come in,

allowing seven weeks, or thereabouts, from the commencement of the forcing to the gathering of the crop, as many of the plants as are intended to be forced must be covered with a regular blanching-pot; then, having some fresh dung well prepared, lay a portion between and over each pot, pressing it well down, and raising it six or eight inches above the tops of the pots. The bed should be examined every now and then, and if the heat should be under fifty degrees it will not be sufficient to excite the plants; and if above sixty degrees, it will be too strong, and consequently, the plants would be injured. In the course of a month after being covered up, the young shoots will have risen six or eight inches high, and will be fit for the table. Should flower-stalks arise, they must be cut away, and a successive crop of shoots will make their appearance, and continue eight or nine weeks from the commencement of forcing. The proper heat is fifty-five degrees, and should never be higher. Previous to beginning to force, spread a little salt over the ground about the plants, in order to destroy worms, which, after forcing is commenced, frequently appear on the surface, and spoil the young shoots. If the weather should become very severe, the dung will require to be renewed every five or six weeks; if not, every seven or eight weeks will do. The exhausted part must be taken away, and the other mixed with fresh dung or leaves. When the plants cease to produce any shoots, the litter must be taken quite away, and the plants dressed, and the ground neatly dug over, in order to encourage the leaves to grow, and acquire and return nutriment to the root for the next year's bud. In gathering the crop, remove a part of the earth, leaves, or whatever the plants are covered with, quite down to the crowns, and cut off the heads or shoots, and slip off the stalks of the leaves. Any of the plants not having been cut, will run in the spring, and produce plenty of seed on every stem.

ODDS AND ENDS.

Beech-nuts and Beech-leaves.—The triangular nuts—commonly called “mast”—of the beech-tree have a pleasant taste, but when eaten in large quantities are apt to produce giddiness and headache. When ground into flour, they are said to make wholesome bread, which, although it may not be so agreeable as ordinary wheaten bread, would yet be of considerable service in times of scarcity, when grain cannot be readily obtained. Beech-nuts when expressed yield a large quantity of oil, resembling that obtained from olives, as much as a gallon having been obtained from one bushel of them; the nuts, after the oil has been expressed, being excellent food for fattening poultry and swine. The oil thus obtained has the property of not easily becoming rancid when kept for a long period, and its taste is so excellent that it has been employed for household purposes instead of butter. The leaves of the beech-tree form an excellent material for filling mattresses, as they remain soft and free from smell for many years. Beech-leaves mixed with honey were commonly used among the Romans to cause the growth of the hair.

A Simple Fruit Gatherer.—Makers of garden appliances sell ingenious contrivances for gathering fruit when it hangs beyond the reach of the hand, but there is a simple instrument for this purpose, which will do the work equally well, and which any person can make for himself. It is in common use in Southern Europe, more especially for gathering figs, and consists simply of a pole, longer or shorter as may be desired, with four prongs, four or five inches in length, projecting from the top, and representing to some extent the fingers of the human hand. Generally these prongs are merely natural branches left in their original places, but poles

with such projections are not always to be procured, and we have seen fruit gatherers in which the prongs were pegs spliced on to the end of the pole and fixed securely to it by a ferule. The fruit gatherer may be rendered still more convenient by being made in lengths capable of fitting together like the joints in a fishing-rod.

Cucumbers.—These plants were very common in England previous to the wars between York and Lancaster, but being then unattended to, they became extinct. They were afterwards again introduced during the reign of Henry VIII. Cucumbers were a favourite dish with the Romans, and according to Pliny the manner of dressing them for table was to boil them, and then having peeled them, serve them up with oil, honey, and vinegar. Small cucumbers, known under the name of gherkins, are excellent when pickled, but when purchased in this state, care should be taken to ascertain that no artificial colouring matter has been added to give them the desired green tint. Owing to the firmness of their texture, cucumbers are rather indigestible to some persons, and this is especially the case with regard to the skin, which, on that account, as well as for its bitterness, should always be removed, unless the cucumber is very young. The cucumber being liable to undergo fermentation in the stomach, it is usually cut in thin slices and eaten with oil, vinegar, and pepper, which help to correct this tendency. The West Indian dish known as “man-dram” is composed of cucumbers, and onions or shalots, the former being cut in slices, while the latter is chopped very small. These are mixed up together, with Madeira wine and lime-juice, with which some crushed capsicums have been mixed. This dish is much used in the West Indies, to increase the appetite.

Almonds.—Almonds are the fruit of the *Amygdalus communis*, a native of Barbary, but which is now extensively cultivated in the colder portions of Asia, and the south of Europe. This tree was introduced into England in 1548, in the reign of Henry VIII., and is grown in this country only on account of its ornamental appearance, as it only bears fruit in this climate during very warm summers, preceded by a very mild spring. It is also found that the almonds grown in this country, although they may taste well, do not keep like those obtained from hotter climates. In this country the almond-tree blossoms in the months of March and April, and bears beautiful pink flowers, but the fruit is late before it ripens. Its leaves and blossoms have also a great resemblance to those of the peach-tree, which is of the same order. There are many varieties of the eatable almond, and they are usually divided into bitter and sweet, but resemble each other so closely as to be only distinguished by their taste. The Jordan almonds, which are the most valued, are thus named from the river Jordan, from whence they were originally obtained. They may be distinguished from other varieties by the paleness of their skin, and by being flatter. These almonds are also longer, and are less rounded at one extremity, and pointed at the other, than the other kinds. The Valentia almond is known by its being compressed in the middle, with one of its ends large and flat-pointed, and also by its large size. Italian almonds are distinguished by being less compressed in the middle than the preceding variety. They are also a smaller kind, and their flavour is not so agreeable.

Marine Soap for Washing Clothes in Sea or any other very Hard Water.—Boil together five parts of caustic soda, with twenty-two parts of cocoa-nut lard, and seventy-three parts of water. When the materials have completely united, allow the whole to become cold, and cut it in pieces with a brass wire held at both ends. This soap is sufficiently solid for ordinary purposes when employed with cold water. But when hot water is used it will be found to dissolve too rapidly for economical use.

HOUSEHOLD DECORATIVE ART.—LIV.

EMBOSSING AND ILLUMINATING ON GLASS.

MANY of our readers have doubtless observed a remarkably beautiful and rich decoration on glass, chiefly employed for the signs of house decorators, and for similar purposes, which shows a profusion of brilliant colouring, and patterns in bright and dead gilding. This method of ornamentation is not, however, confined to the above uses, but may also be applied in various ways to interior decoration, and, elaborate as it may appear, it is by no means difficult of execution.

Plate-glass thus embellished may be used for name-plates for doors, to serve instead of wire-blinds in the lower parts of windows, as finger-plates for inside doors,

upon the hands. A gutta-percha bottle must be used to contain it, and the glass, when under treatment, must be laid in a gutta-percha tray. Both the articles are sold at gutta-percha shops for the purpose. Owing to the corrosive properties of the acid, it would soon make its way through any bottle or vessel of glass; and it must not be kept near china, since its fumes, should any escape, will inevitably destroy the glaze of that material.

Process of Plain Embossing.—In preparing the glass for plain embossing, it is first necessary that all those parts which are to be left transparent, and upon which, therefore, the fluoric acid is not intended to act, should be covered with some substance capable of resisting it; that employed is Brunswick black, which is a preparation of asphaltum. In Fig. 1 we give a design for embossing

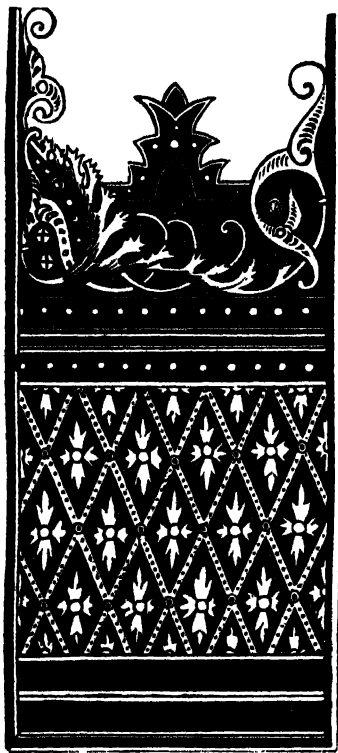


Fig. 1.

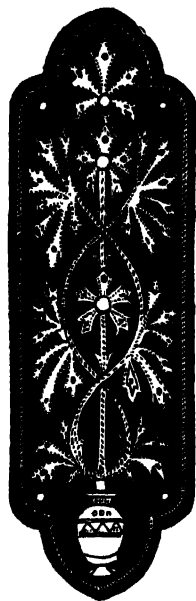


Fig. 2

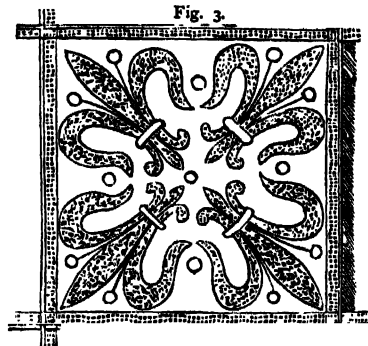


Fig. 3.



Fig. 4

and as panels for the pilasters, &c., of chimney-pieces. We have also seen it applied as panels for chiffonniers, sideboards, and other articles of furniture, for which it is well suited, provided the position in which it is placed be one where the glass is not too much exposed to danger of breakage. Plain embossing, which is effected by eating away the surface of the glass with acid in parts in such a manner as to form a pattern, is also a kind of decoration useful for the panes of glass let into doors, for windows, and especially the lower parts of them; and, indeed, for application whenever it is desired that light should be admitted but the glass not be seen through.

Plain embossing is exceedingly simple, and, where the pieces of glass are not of a large size, easily accomplished. The only known chemical agent which will act upon glass is fluoric acid, which is formed by pouring sulphuric acid over "blue-john" or fluor-spar. This chemical is expensive, but it must be handled with care, as spots of it will destroy the clothes and be liable to cause sores

the lower part of a window in an ordinary dwelling-room. In this the whole of the parts intended to be transparent must be painted in very evenly by means of a camel-hair pencil with Brunswick black; any break or imperfection in this coating, will allow of the acid acting wherever it occurs, and injuriously interfere with the accuracy of the work. The design to be embossed, which may, for instance, be an enlargement to scale of one of the panes shown in Fig. 1, should be drawn upon paper, and the glass being laid over this the pattern will show through, and all its lines can be accurately followed in laying on the Brunswick black. The design being thus prepared, the reverse side and the edges of the glass should (that the acid may not operate upon them) be coated with a mixture of beeswax and tallow, melted together in a pipkin, in equal proportions, and applied while warm with a brush. The glass has then to be laid in the gutta-percha tray, and the fluoric acid, diluted with about the same bulk of water, poured on. While the glass remains in the

bath, it is well to stir and dabble the fluid upon it with a pad of cotton-wool attached to the end of a stick, and in a few minutes, more or less, according to the depth required, the acid will have sufficiently eaten into the glass, which must then be removed and thoroughly washed. Before working with fluoric acid, it is well to rub a little olive oil over the hands, to neutralise the effect of any spots which might fall upon them, and it is advisable to perform the operation of corroding out of doors, as the fumes which arise are disagreeable and not particularly wholesome. The wax and grease may be removed by holding the glass before the fire, when they will come off; and the Brunswick black can be cleaned away with a rag of turpentine. The pattern will then be seen giving a deadened effect, like that of ground-glass, to the whole of the parts left exposed to the action of the acid. With care, there is, as will be seen from the above directions, nothing in the process of plain embossing which cannot readily be accomplished by any person who can handle a camel-hair brush. We may remark that occasionally, instead of using a gutta-percha tray, a wall of the wax is simply built round the edges of the glass to prevent the acid running off; and that sometimes the glass, instead of being laid with its face upwards, and having the acid poured upon it, is placed face downwards above a vessel containing the fluoric acid, to be acted upon by the fumes which arise. This process is, however, comparatively speaking, a very slow one. It may, nevertheless, be sometimes found useful as giving the effect of a slighter embossing, and thus producing variety when combined with the other method.

Embossing in Connection with Gilding, &c.—Embossed work may also be enriched with gilding, silvering, or bronzing. The whole surface may be covered with gold or silver, but a difficulty will always be found by the inexperienced gilder in so laying on the leaves of gold over a large surface as not to some extent to show the joinings. It is, therefore, generally better to employ gilding in parts only or in combination with colour. Gold or silver leaf is to be attached to the glass with dissolved isinglass, by the method known as water-gilding; for this we have given detailed and complete directions in our articles on Papier-mâché Work (see page 108, vol. iv.), and it would be unnecessary to repeat them. When attached and burnished, the gold should be secured at the back by being painted over with chrome yellow, mixed with japanner's gold size. If the whole surface is to be gilt, and the pattern to be bright upon dead gold, or the reverse, all parts of the glass must be painted indiscriminately with the mixture of chrome yellow; but if the pattern or parts of the pattern only are to show as gold, the chrome yellow must be carefully confined to those portions, and when it has become perfectly dry, all the superfluous gold, which has not been so secured, may be removed with a piece of wet cotton-wool.

Bronzing, however, may be effected by a different and much easier process. In bronzing none of the difficulties of making good joinings will occur, and the whole surface of a large piece of glass may be readily and effectively covered with it. The glass, or those parts of the glass to be bronzed, should be painted over with copal varnish, which should be kept from drying too quickly by the admixture of a few drops of linseed or poppy oil. The varnish should be allowed to dry until it becomes slightly tacky only, and the bronze powder will be then rubbed on it by means of a piece of cotton-wool or soft wash-leather, and will show its metallic surface through the varnish. Although no bronze is equal in brilliancy to gold, in the use of these powders the decorator will have the advantage of being able to choose from a variety of shades and colours, or to use them in combination. There are silver, pale (gold), citron, orange, "flesh," copper, and other bronzes, all of which are beautiful and inexpensive.

In Fig. 2 we give a design for a finger-plate, to be

worked out in gold and colour in connection with embossing. Those portions of the design which are covered with dots have first to be eaten away with the acid, and over these, as well as the portions left white, gold-leaf has subsequently to be laid and secured. This will give the dotted portions in dead and the white will be in bright gold. After the gilding has been secured and the unnecessary gold cleared away, an outline should be drawn round the pattern in any good black, and the ground (indicated by horizontal lines) will then have to be painted in colour, which can be varied in such a manner as to suit the other fittings of the room. A deep blue will be effective, provided it will harmonise with the surrounding paper and paint.

Embossing in Connection with Illumination.—In Fig. 3 we give an example for the simplest kind of illumination, in which shades of the same colour only are used in connection with gold and embossing. It is intended to form the squares of a chess-table, and these squares in bright and dead gold and light and dark blue will alternate. With the process of decorating those in gold we have already dealt. In them the ornamental parts, indicated by dots in the illustration, will be embossed, and thus shown as dead; but in the dark squares the dotted ornamental portions must first be pencilled in light blue (a mixture of ultramarine and flake-white), and allowed to dry, after which the whole square will be covered with pure ultramarine. If desired, the blue squares, however, may also be embossed, and the light colour applied to the embossed portions. This would have a very good effect, but would cost greater labour. When finished, such a top should be let into a wooden or papier-mâché frame or table. In connection with the latter material it has generally been used, and with good result.

Glass Decoration in Imitation of Inlaid Marbles, &c.—Glass decoration, without embossing, is capable of being used as a substitute for or as an imitation of inlaid marble, and as such may be employed for the tops of tables, or for the panels of pilasters, &c., in chimney-pieces. For one of the latter Fig. 4 is a suitable design, and this may be treated in two ways. First, as an imitation of marble. Let us suppose that the flowers are to be shown as white Parian, the leaves as green malachite, and the stems as brown Sienna, while the ground is of black Irish marble. In representing marbles upon glass, it is necessary that the veins should be first painted in. As these will require to be very delicately pencilled, it will be well for the decorator to lay the plate of glass over paper of the same colour as the marble to be imitated, which will thus enable him to see the exact nature of his lines. Where the veins are decided in form, the lines should be allowed to become dry before the general colour of the marble is painted in; in others, where, as in Sicilian, they have a misty appearance, the general colour should be painted on while they are still somewhat wet, and the effect of their melting into it will thus be gained. The effect of spots may be given by spurtling colour from the brush. Malachite is imitated by, in the first instance, taking a little black paint, very much thinned with turpentine, and working it round with the tip of the finger, so as to form concentric rings, and then painting it over with emerald green. The imitation of marble upon glass is not, however, always successfully practised by an unprofessional operator, and this design will be much more easily carried out in the second method, which is by merely laying in the different parts in flat colours, which at a little distance has an almost equally good effect.

It is scarcely necessary to observe that in all decorations of this class the colours, gold, &c., have to be applied on that side which is intended to be farthest from the spectators, and that those colours or ornaments which are to show most prominently are to be applied first.

SOCIETY.—V.

PROMENADES, ETC.

THE rules which regulate mutual recognition by persons meeting in public thoroughfares, promenades, or other places of public resort are much the same as those which are observed in drawing-rooms. The first advance is always made by the lady. In most Continental society the contrary practice obtains. French gentlemen, for instance, lift the hat immediately on recognising a lady of their acquaintance, but Englishmen wait until they perceive an inclination of the lady's head, and do not commence a conversation unless the lady takes the initiative.

Although in England ladies enjoy far greater liberty of movement in public places than is permitted in Continental society, it is not considered proper for unmarried ladies to frequent promenades and the principal thoroughfares, thronged with business-men and pleasure-seekers, unless under befitting escort. If business should require them to go into the heart of the City, riding in an omnibus is even a less exposed position than walking would be. Should it happen that such journeys must be taken on foot, the dress of the pedestrians should be of studied simplicity and unobtrusive style. Instead of looking right and left to discover familiar faces, they should avoid the necessity of recognition by looking in a contrary direction to that by which they may perceive an acquaintance advancing. This practice is not to be confused with "cutting," the most ill-mannered act possible to commit in society. A person can only be "cut" by coolly staring him in the face without any sign of recognition. Upon no consideration should a young lady stop to speak in a crowded thoroughfare. If it be absolutely impossible to pass a gentleman without speaking, the gentleman should instantly retrace his steps, and continue walking by the lady's side for as long a time as conversation may be necessary. A lady may take the arm of a gentleman with whom she is walking in a promenade, but for a gentleman to walk between two ladies is not considered an admissible practice in good society. The second lady should walk at the side of her female companion. The same rule applies to two gentlemen when walking with one lady. The gentlemen walk side by side, the more intimate of the two offering his left arm to the lady.

When a gentleman is recognised by a lady in a promenade, he should instantly raise his hat—not touch the rim. He should then pass on his way, unless the lady advances and offers her hand. The latter custom is seldom observed in promenades, unless the lady wishes to make particular inquiries on any matter of personal interest at the moment.

The most convenient mode of raising the hat is with the left hand, the right being left free for shaking hands if desired. As a general rule, however, gentlemen in passing acquaintances at a promenade should lift the hat with the hand the farthest from the acquaintance they meet. Thus, if a gentleman meets a friend passing on the right, he should lift his hat with the left hand, and *vice versa*, according to the circumstance.

Persons who are liable to meet several times in the course of a promenade, as, for instance, at a flower-show, or in the parks or other public resorts, need not bow each time—once is sufficient.

Gentlemen on horseback, when required to speak to ladies, should dismount and hold the horse, if there be no groom, during the conversation. In this as in every other matter when inconvenience is likely to arise from recognition, ladies should be studious not to arrest attention.

Gentlemen should not smoke when walking with ladies, neither should ladies detain gentlemen in conversation when the latter are smoking, because a well-mannered man has no option in the matter save to throw away his

cigar, which, if a good one, he would probably consider a sacrifice. Introductions to persons whom people meet casually, as in a promenade, are not of necessity. A certain understanding, indeed, generally prevails that people should not enter into conversation with persons to whom they have not been introduced, which makes omission of the compliment sometimes rather awkward. Tact alone will dictate what to do in the matter. If an introduction is not to take place, it is obvious that a lengthy conversation between two persons, to the tacit exclusion of the third, is in extremely bad taste. If an introduction is to be made, the name of the younger gentleman should be mentioned to the elder or superior in station. In the case of an introduction of a gentleman to a lady, the gentleman is always the one to be presented. The mere mention of the name of either person is sufficient, and conversation proceeds as usual.

Loud talking and animated discussions are out of place in public places of resort. If every one indulged in such habits, the congregating of numbers of persons in one spot would be far from an agreeable recreation. Strict reticence of speech and conduct should be observed in public.

COOKERY.—LXXXI.

FRENCH DISHES (continued from p. 176).

Cervelles de Veau en Mayonnaise.—Calves' brains dressed *en Mayonnaise* are prepared in the manner directed for *Cervelles de Bœuf en Mayonnaise*.

Coquilles de Ris et de Cervelles de Veau (Calves' Brains dressed with Rice).—Dress the brains with rice in *bouillon*, some butter and lemon-juice or verjuice being also added. Put in with them, also, mushrooms, and season with salt and pepper. When sufficiently done, remove them and cut the brains and mushrooms into small pieces; then put in a stewpan some *jus blond* and a little *gelée*, and make it boil, and add the rice, brains, and mushrooms to it, and also before removing the vessel from the fire some butter and lemon-juice. When sufficiently done pour the ragoût into a proper vessel, cover the surface with bread-crumbs and grated cheese, and brown the surface under a hot cover, on which red-hot cinders have been laid.

Poitrine de Veau à l'Allemande (Breast of Veal dressed in the German manner).—For this purpose the breast of veal may be cut into pieces or left entire. A stewpan is to be lined with slices of bacon, the breast laid on it, together with onions, carrots, parsley, chives, thyme, and bay-leaves, and a little salt and pepper. The stewpan is placed over a moderate fire until nearly done, then some broth and white wine are added. When the meat is cooked, thicken the liquor with a spoonful of flour, previously browned with butter over the fire and dissolved in a little of the broth. Add to it, also, the livers of two fowls previously cooked, and cut in pieces, together with two anchovies and some blanched parsley, the whole being chopped up small.

Tendons de Veau en Kari (Sinews of Veal stewed with Curry).—Cut some sinews of veal into small pieces, blanch them in hot water, and dress them in butter, with bacon cut into small squares or diamonds, or other shaped pieces. Season them strongly with curry powder. When nearly done, add some artichokes or onions which have been previously almost cooked. Do not skim the fat from the liquor, but boil it down until it becomes thick, and then send to table. Occasionally the liquid is thickened with a few raw eggs beaten up before it is removed from the fire. A dish of rice prepared in the following manner should also be served up with *Tendons de Veau en Kari*.—Take a sufficient quantity of rice, wash it carefully, and steep it in boiling water, or in *bouillon*. If the latter is employed, only sufficient should be used to swell the rice. When the rice has swelled sufficiently, place it

on a sieve to drain; then butter the inside of a stewpan and put the rice in it, and place it over a gentle fire until it becomes soft. Now place a hot cover with cinders on it over the rice, and allow it to remain until done.

Tendons de Veau en Kari à la Mexicaine (Sinews of Veal stewed with Curry in the Mexican manner).—This dish is prepared in the manner directed for *Tendons de Veau en Kari*; but before serving it at table, two table-spoonfuls of *Marmelade de Tomate* require to be added.

Tendons de Veau à l'Allemande (Veal Sinews dressed in the German manner).—This dish is prepared in the manner directed for *Poitrine de Veau à l'Allemande*, sinews cut in small pieces being substituted for the breast of veal.

Tendons de Veau Frits (Veal Sinews fried).—Get ready some veal sinews in the manner directed for *Tendons de Veau en Kari*, and dress them with butter in a stewpan; when done, thicken it with a little flour, and mix the whole well together. Then pour in some bouillon, and season with pepper, salt, mushrooms cut into squares, and some parsley, chives, bay-leaves, and thyme, chopped up as small as possible. When sufficiently done, remove the stewpan from the fire, and take out the sinews; thicken the liquor with the yolks of three eggs beaten up, empty it into a dish and allow it to cool. Now take the tendons, dip them into the sauce, and cover them with bread-crumbs; then apply to them some raw eggs, beaten up; sprinkle more crumbs over them, and fry them at a moderate heat.

Gâteau de Foie de Veau.—Chop up into small pieces some calf's liver, and pound them in a mortar, and also do the same with half a pound of beef suet, and the same quantity of bacon. Add to them some mushrooms and onions cut into small squares and cooked in butter, the whites of six eggs beaten up into froth, together with half a glass of wine, salt, pepper, and nutmegs, and beat the whole together into a paste. Then cover the inside of a stewpan with slices of bacon, and place in it the chopped-up materials, with some truffles cut in pieces and mixed with them, and cover them over with more pieces of bacon. Now put the cover on the stewpan, and place it over a slow fire, and also put a few lighted pieces of charcoal on the cover of the vessel. When sufficiently done, allow the stewpan to become cold, so that its contents may set into a solid mass. Then place the vessel in hot water for a moment and turn its contents out on a dish, and having removed the pieces of bacon, trim the surface of the meat into a proper shape.

Foie de Veau à la Broche (Calf's Liver dressed before the Fire).—Season the liver with salt and pepper, together with parsley, chives, bay-leaves, and thyme, chopped up as small as possible. Surround the meat with slices of fat bacon, and tie them on with string. Then roast the meat before a slow fire for two hours. *Foie de Veau à la Broche* should be sent to table with *sauce piquante*.

Poitrine de Veau aux Pois (Breast of Veal with Peas).—Cut some breast of veal in pieces, blanch them in hot water, and cook them with butter in a stewpan, then mix with them a sufficient quantity of flour to thicken them, and also some parsley, chives, thyme, and bay-leaves, cut small. Then pour in some bouillon and season it with some pepper, but no salt must be added, owing to the quantity already contained in the bouillon. When the veal is nearly done, add some peas and a piece of sugar, and continue to simmer until the meat is ready for table, then add the yolks of three eggs beaten up with cream.

Rouelle de Veau dans son Jus (Fillet of Veal with Gravy).—Cut some fillet of veal into rather thick pieces, lard it with fat bacon well seasoned. Put it in a pan with a little butter over a moderate fire until it changes colour, and then let it cook in its own juice until it is done. The gravy should then be strained and served up with the meat.

Veau à la Gelée (Veal in Jelly).—Take some veal chopped in pieces, together with bacon, ham, and truffles. Line a stewpan with slices of bacon, and put them in it, together with some veal bones broken in pieces, a calf's foot, two onions, two carrots, a parsnip, salt, pepper, parsley, chives, thyme, and bay-leaves. Add also some bouillon, or water, if preferred, with a glass of white wine. Make the liquid boil, skim it, and let it simmer at a gentle heat. When the veal is done, take it from the pan, and allow it to cool in a mould. Then boil down the contents of the pan into a jelly, as directed for *Epaule de Veau Farcie*, and glaze the surface of the meat with it.

Blanquette de Veau (Veal in Sauce).—Fry some chopped parsley and chives in butter, and add flour to thicken it. When done pour in some stock with mushrooms chopped up, and season with salt and pepper. When the mushrooms are done add some minced veal, and let them simmer until ready. Then add the yolks of three eggs beaten up, the juice of a lemon, or else some verjuice, or vinegar.

Veau Rôti à la Languedocienne (Roast Veal prepared in the Languedocian manner).—Roast the veal until it is browned, then baste it often with oil, lemon-juice, or vinegar, two anchovies, pepper, and salt. When ready, skim the gravy with which the meat was basted, and serve with the veal.

PLAIN NEEDLEWORK.—I.

LADIES' UNDERCLOTHING.

THERE cannot be a doubt that every woman should learn, and be thoroughly competent, to cut out and make every article of her own underclothing. It takes considerable practice to become expert at this. Whether the task of making one's own underclothing is persevered in always, must be according to circumstances—means, health, and other duties may render it unnecessary or undesirable—but it will very frequently be found that, even where the sewing is given out, it is necessary to cut the patterns at home. In the first place, many sempstresses are unable to cut out; secondly, a lady can economise her material; thirdly, where there is a large family and small means, it is desirable to have a sewing-machine. Some one may always be engaged to work this, for it may not be necessary that the lady should do so herself; but the work must be cut out for it. Another excellent reason for learning to make clothing is, that if even when a woman be wealthy she may not always remain wealthy; and, in case of any reverse, it will be of inestimable value if she can make her own garments. She may not always be able to earn a sovereign, for employment is limited; she can always save one, especially in dressmaking, of which we shall presently treat. Another indirect good flowing from young ladies being able to work for themselves in the matter of garments is, that they will be less hard upon those whom they employ, both in the excessive neatness required in the work, and, what is of more consequence, in the meagreness of the pay they offer.

In teaching young people to work for themselves, purchase rather thin, soft, undressed calico, which is softer than longcloth. Let them see you cut out the garment; pin and tack it for them. Let them work neatly, but not too finely; it is a mistake to aim at perfection all at once. Let them try to work evenly and regularly; when they work with facility, encourage them to try how finely they can work. They may also now learn how to cut out and tack their own patterns.

Any one may learn mere simple cutting out from a pattern, but the real art of shaping is a gift. It requires practice to come to perfection. It manifests itself first in the perfection of set and fit it effects; afterwards, in the ability to cut patterns without any model. A good cut for under-clothing is only second in importance to a good

cut for dresses and mantles, though certainly faults in the latter are most conspicuous.

Chemises may be cut by any of the patterns given for children. Purchase the widest calico. The price must be regulated by the means, but, unless poverty compels, 9d. or 9½d. per yard is a fair price. For chemises, rather a fine make should be used. Anything cheaper is really not worth the trouble of making up. The price may be as much above as means and taste allow; but beyond 1s. a yard no advantage in wear is likely to occur. As far as trimming is concerned, except for evening wear with low bodices, or a marriage trousseau, it is not to be recommended, for the modern laundry work is destructive to ornaments. Very fine cotton is generally used by hired sempstresses; it looks very neat, but it soon breaks, and the seams rip.

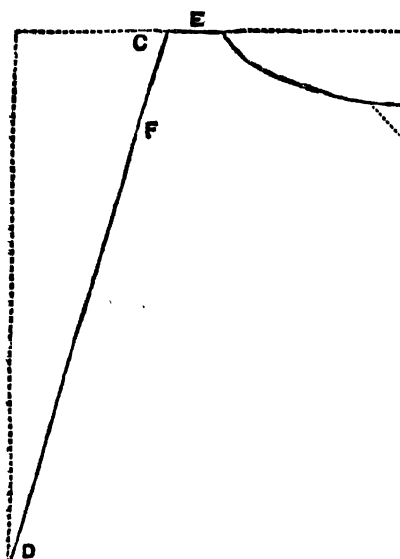


Fig. 1.



Fig. 5.

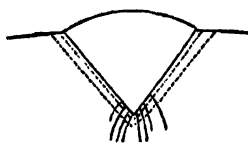


Fig. 6.



Fig. 3.

Fig. 4.

the base; gather the top, and set it in a band. The first of these is very simple and easy. Fig. 2 is a pattern suitable to a wide chest or full figure. This has two bosom gussets let in. To let in these, cut a square, like Fig. 3, five inches long; double it, and cut it like Fig. 4. Turn in an edge of each sloping side. Slit down the chemise four inches; turn in each edge. First pin and then tack the gusset behind the slit. The chemise is turned into the gusset, the gusset is turned into the chemise. Stitch the gusset to the chemise close to the edge; make a second stitching the eighth of an inch from the first. This ought to secure the edge of the gusset. Button-hole the corner, A (Fig. 5), shaping the stitches to a point. Reverse the chemise, and very neatly hem down the corner, turning in the edges. The stitches ought to have secured the reverse edge; if not, very

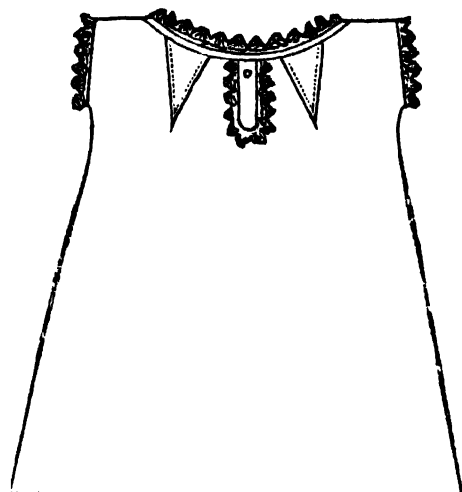


Fig. 2.

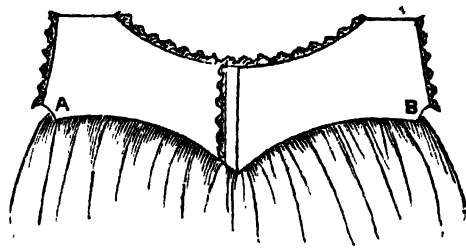


Fig. 7.

Fig. 1 is a good pattern. Measure the length of the chemise in the longcloth; double it, and cut it off—the doubled end is to be the top. Then double it lengthwise, the fold in the centre (A to B). Next slope off a gore (C to D), about four inches wide at C, and shelved away to nothing at D. Then hollow out the neck (E to A); afterwards double the material in the hand, and make the little dotted dip at A—this gives a specially charming set. Make it not only in chemises, but in all low petticoat bodies and camisoles. E forms the shoulder. Run and fell the sides to F, and hem the rest as a sleeve. Some persons add a sleeve, but it is better omitted, especially if it be worn under white or low bodies.

The extremity of the skirt of a chemise is always hemmed, from D to B, all round. The top may be completed variously; the simplest way is to hem it round, make an eyelet-hole in the hem at A, and insert a string. Another way is to cut it open three inches at A; make an inch wide hem on the right side, and a very narrow one on the left; stitch the wide hem over the narrow one at

finely hem it. The edge of the gusset is above the chemise edge; round it as shown in Fig. 6.

The yoke-piece is the best setting of all chemises, and particularly to be recommended for full figures. Fig. 7 illustrates the yoke-piece. You may cut chemise No. 1. Pin your yoke-piece on it; run it in to the yoke, A to B (Fig. 7), back and front; tack it. Cut off all that is superfluous; untack it; cut from it your future patterns. Fig. 8 shows the pattern of the yoke; all the French embroidery patterns are of this shape. You cannot do better than buy an easy one to work. Work it in coarse cotton. Cut it out, leaving a turning-in. This will serve as a pattern for your chemise. You may use your embroidery as a chemise top, or to top a camisole under a muslin body.

To put on the yoke, you may simply pipe the front, run the gathers to it, and hem the wrong side, or run the gathers to the right side. Cut a narrow band, and double stitch it over the edge, having previously hemmed down the wrong side. A yoke may open in front, or be in one piece. If your pattern is too small, increase it by allowing

as much as you want extra, an inch or more, at A in the back and C in front.

Drawers may be cut by any of the children's patterns. They should be plentifully wide at the knee. Women's drawers require to be wider from E to F (Fig. 9) than children's; also the slope from A to B for the back and C to D for the front is greater than in children's. Having a pattern, run and fell the legs together, gather the top, and tack to a band. Try the drawers on before a glass. Regulate the gathers and the waist, and with pins shorten the outer part, if needed. Drawers patterns often require to be lengthened at B and D. Figures differ so much, the pattern for one will not suit another.

Make a hem at the knee, and run in an elastic, or set the knee in an inch-wide band, doubled.

Flannel jackets are cut like a chemise top. By halving the flannel, as in Fig. 11, you get a better shape, as in Fig. 12, about the lower part. Slope in at the waist, and get a nice fall in the hollow of the back.

If you wear flannel vests, first shrink the flannel. Throw it in a tub in the piece; pour boiling water on it; let it lie till cold; squeeze out, and dry slowly. Put it in the tub again; throw cold water on it; let it lie some hours; take it out, and dry slowly. As flannel thickens very much, fine open flannel is best for such a purpose. Now make your jacket by Fig. 13.

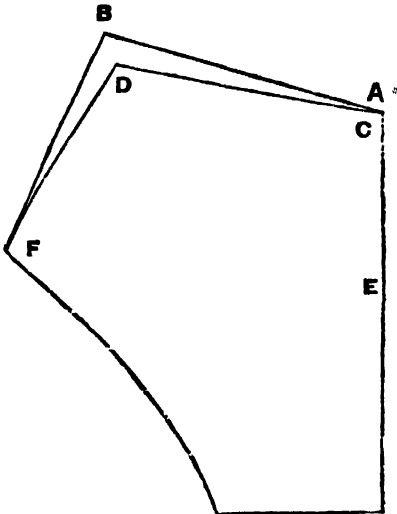


Fig. 9.

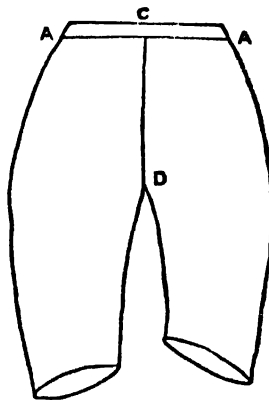


Fig. 10.

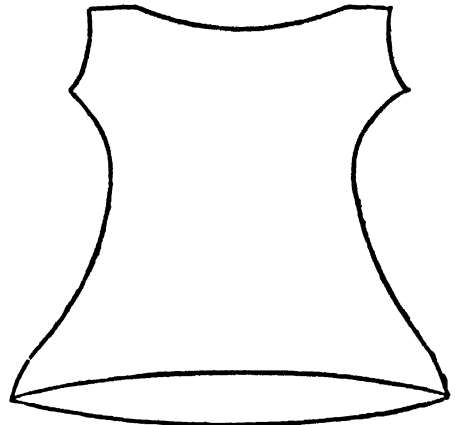


Fig. 12.

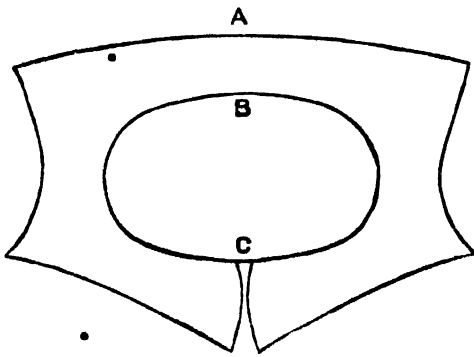


Fig. 8.

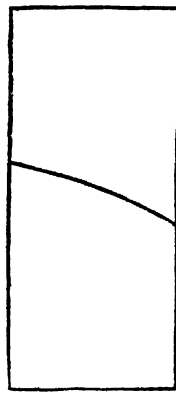


Fig. 11.

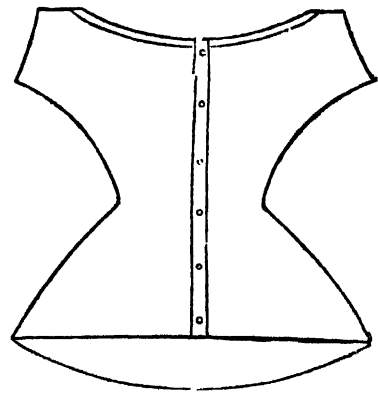


Fig. 13.

It is a very common fault to make drawers "hook up," like Fig. 10. To remedy this try them on merely tacked, as already suggested. At A, A, on the hips, raise them till they sit right; also push back the surplus gathers from the hips to the front and back. The half of the leg should not come exactly to the half of the band on the hip, but nearly an inch to the back. The best way to make women's drawers is in two separate legs, set into a band. Let them be very wide, and wrap over behind. They should be amply long—an inch or more than the figure, from C to D (Fig. 10). Cut them the width of the long-cloth, if necessary, and put a false hem on, from D to F and F to B (Fig. 9), shaping the corner. At the knee make a hem and two tucks. Embroidery may be added to fancy.

Knickerbockers are made similarly. If of flannel, it is best to buy it shrunk. If not shrunk they must be made half as large again as needed. Scarlet is generally used.

Set your vest moderately close to your figure with pins; cut it open straight down the front. First run, then herring-bone the side seams. On the left of the front run a false piece of calico or cambric muslin; lay it over and hem it down on the left side, because the flannel is to be next you. Sew the buttons on this. For the right side cut a false piece an inch wide, double, for the button-holes. There should be at least nine buttons of a very small size, about a quarter of an inch in diameter, to close it tightly. Turn down and herring-bone the top seams and lower hem. Many persons bind these with cambric bands, which is optional.

Shetland woven or knitted vests take the least possible room of any, and are very warm. These, after shrinking, may be taken in as described. The woven vests generally need altering, especially in length, but with care not to drop the stitches this may be done.

MODE AND EXPENSE OF ENTERING THE PROFESSIONS.—IV.

MINING ENGINEERS.

THOUGH the term mining engineer might be taken by the casual reader to embrace the whole of that branch of the engineering profession which applies to the construction and management of mines of whatsoever nature, yet we wish our readers to understand that it is only to the mines situated in the north of England, and which contribute greatly to its wealth and importance, that this article has reference. Our remarks have no reference to gold or silver mines, nor yet to the Cape diamond mines, but simply to coal mines, or, to speak more professionally, collieries.

Little is known of the profession of a coal-mine engineer in the south of England, because its practice is confined to the north, the midland counties, and Wales. So it is only those parents who, being actually resident themselves, or having intimate connections in the colliery districts, that have an opportunity of judging the importance of placing their children in a profession at once so honourable and lucrative as that of a mining engineer.

Two things combine to recommend this profession to the notice of parents, and more especially to those enjoying the blessing—or the reverse—of a large family, with but slender means to provide for it. In the first place the small outlay consequent upon entering a son therein, and next the probability of his finding good employment, if he possesses adequate ability, in a very short time after he has served his appointed time with the mining engineer with whom he is placed as a pupil.

To explain these two propositions we had better state first the necessary steps to be taken to enter the profession, and then the duties and responsibilities of the profession itself. The mode of entering the profession is the same in all cases, and must be by a bond entered into with the mining engineer, or "viewer," as he is generally called, with whom the parent proposes to place his son. This bond is exactly similar to ordinary articles of apprenticeship. The premium to be paid is generally £300. After the bond is signed and the premium paid, the young gentleman is handed over to the care of his future master for a period of about four years.

After the bond is signed, and the service commenced, the apprentice, as we must now call him, either resides in the viewer's house—for which, of course, a pecuniary arrangement is made, generally about £100 a year—or in convenient lodgings close at hand. Wherever he may lodge, however, he must bear in mind that he is under the immediate and perfect control of the viewer, who exercises over him the authority of a master, tempered by the forbearance of a father or guardian.

During the four years which he will have to serve, he must prepare himself for hard work; he must get up at least three times a week at four o'clock in the morning, and go down the pit, in company with the under-viewer, and some of the officials, or *overmen*, as they are termed, who will show and explain to him the underground working of collieries, the system of ventilating them, and the machinery connected with them both above and below ground. After this a bath is generally considered necessary, and breakfast will follow as a matter of course. Then he will attend the office—which is generally situated close to the viewer's house—for a few hours. On days when he has been down the pit his office duties are purposely limited as far as possible; on other occasions he must be there for at least six hours during the day. His work consists for the most part of surveying, and drawing plans, consulting the colliery books, checking the colliery bills, and in fact, doing any office work in connection with the colliery that the viewer directs him to turn his attention to. Part of his work when down the pit will be surveying; and the copying out the results of his

surveys will also constitute some of his employment in the office. Every alternate Saturday he will have to himself, for pitmen, as a rule, refuse to work on "pay Saturdays," which arrangement, though damaging to some extent to the pockets of the owners, is yet a very satisfactory one to the young gentlemen in the viewer's office; added to which a period of six weeks in the year is allowed for vacation, which the apprentice can take at one time, or in different periods, as he thinks fit.

Although his work will be hard, the apprentice will not find his period of bondage an unpleasant epoch in his life, and though at first a little dull, perhaps, by reason of his being in a strange—in some instances a very strange—place, far away from his friends, he will soon accustom himself to the novelty of his situation, and by the time his articles are at an end, and the period arrives when he must leave his master's service, he will feel many a pang of regret at saying good-bye to the place where, we are sure, he will have spent many a happy hour.

Thus much for entering the profession. Let us now turn our attention to the profession itself. After a man has served his time, he is supposed, and generally is, quite competent to be placed in the position of an assistant or under-viewer of any colliery, and if he is a man of any ability he will not have long to wait before a situation as such is offered to him. During the time he has been in the viewer's office he will have mixed largely with the different coal-owners and chief viewers of the county, who are always on the look-out for young men of talent to place in charge of their pits, and if they have a post vacant, they will generally offer it to any rising young man who has just completed his articles. Independently of this the viewer himself keeps his eyes open for his pupils, and recommends them himself to the different owners as far as lies in his power. By these means a young man does not long lie idle, in fact we scarcely know a single case of a man being out of permanent employment a year after he has left the viewer's office. Let us then suppose that our apprentice has had decent luck, and has obtained a situation such as we have described, and is placed in charge of a colliery. He will then be the possessor of a house, besides perquisites in the shape of coals, lights, &c. together with a salary of not less than £100 or £120 a year. This, if he is a man of fair ability and worth, will be increased by his employers, and he will probably have a horse kept for his use. In a few years he will most likely succeed a step, and become a "resident" viewer, and be making five or six hundred a year. In his capacity of resident viewer he will have the entire charge of the colliery upon his shoulders, subject to the control of his chief, or consulting viewer, who resides probably at a neighbouring colliery; for when a man becomes a chief viewer he may be the mining engineer of a dozen collieries, and have as many resident viewers in charge thereof, to whom he delegates his authority, but it is his business to see that things are well and properly carried out through their medium.

A resident viewer, such as we have described, though under the supervision of his chief or consulting viewer, has really the entire management of the colliery at which he is resident, and is responsible for anything that may go wrong, and this is what constitutes the only drawback to the profession. Once out of his articles and in a situation a man is never free from anxiety. The knowledge that the lives of two or three hundred people, and perhaps more, are constantly depending upon his care and vigilance, is of itself enough to render him a prey to all sorts of morbid fears for the safety of those concerned in his colliery. Neither can he, for the same reason, be absent for a long period from the scene of his duties; for such is the perverseness of colliery matters, that we never once knew a viewer who did not complain of his inability to take a holiday at the seaside or elsewhere for a week together

without something going wrong. However, these cares may sit more lightly on some men's shoulders than on others. It is to these, then, that we address ourselves, for we could not conscientiously advise any man not capable of bearing a weight of anxiety such as we have described, to embrace the profession of a mining engineer.

SPICES.

• CINNAMON.

CINNAMON, when of the best quality, is the inner layer of the bark of the *Cinnamomum verum* tree, carefully dried. The tree thrives best in a soil consisting chiefly of silicious sand, and which contains only a very small proportion of mould. When allowed to grow wild in soil of this kind it attains a considerable height, even exceeding thirty feet. But if this tree is grown in a richer soil the bark obtained from it contains less essential oil, and is of an inferior description. The best cinnamon is of a lightish tint, between brown and yellow, and has been compared to Venetian gold, and possesses a smooth and shining surface. It should also possess a sweetish taste, and not cause any unpleasant pungent sensation to the tongue when chewed; neither should the first impression of sweetness it produces be followed by any bitter or other taste. Good cinnamon is not thicker than cartridge paper, and so pliable that it may be compressed with some force without breaking, and it should not be hard. It should also admit of being bent before it breaks, and when broken in pieces it should break into splintery fragments. Much of the cinnamon commonly met with does not possess these characteristics, either from being obtained from other trees than the *Cinnamomum verum*, or from sufficient care not having been taken to gather the bark at the proper period; for it is found that, when collected too young, the cinnamon has an unpleasant taste, while, if too old, its flavour will be rough and disagreeable. Cinnamon is imported in bales or boxes, containing from eighty to ninety pounds' weight in each. It is usually packed with black pepper to preserve it from the attacks of insects. Real cinnamon bark is generally divided into three classes, according to its quality, but the best kind is usually mixed with pieces of an inferior character. The most valuable variety is known as *honey or sharp sweet cinnamon*. The second quality is called *snake cinnamon*, while the third variety, owing to the strong smell of camphor it gives out, is named *camphorette cinnamon*. Another variety is named *astringent cinnamon*, from the peculiar bitter astringent taste it possesses, but when fresh, it has an agreeable smell like the other varieties, and is therefore mixed with the better kinds when sent over. Cinnamon of inferior descriptions may be known by some of the following characters:—It is either dark coloured or brown, or else it is thicker, harder, and not so pliable as the true cinnamon. Sometimes it is met with of the thickness of half-a-crown, but then should always be rejected. The peculiar sweet taste so characteristic of the best cinnamon is also absent, and it usually possesses a very pungent taste that seems to bite the tongue, and this is often succeeded by an unpleasant flavour in the mouth. Occasionally it has a very hot taste, like that of cloves. Cinnamon bark is usually removed from the tree during the months of April and December. The outer layer of bark is first removed, and then the inner bark, which, when dry, forms cinnamon, is slit down lengthways, and peeled off with the point of a knife, and is then placed in the shade to become partly dry. The pieces are now curled, cut into lengths, enclosed one in the other, and dried in the sun.

Cinnamon owes its peculiar properties to the essential oil it contains, which is much employed for the purpose of flavouring, and also in perfumery. It is imported from abroad, being prepared from the small pieces and frag-

ments left after packing the cinnamon. To procure it the bark is coarsely powdered and then distilled with sea water. Two oils are thus obtained, a light oil which floats on the surface of the distilled fluid, and a heavy one which falls to the bottom. These oils are most abundant when the cinnamon is fresh, for it is found that from eighty pounds of recent bark two and a half ounces of the light oil and about twice that quantity of the heavy oil may be obtained; but when cinnamon has been kept in store for some years that quantity yields about half an ounce less of each kind of oil.

Oil of cinnamon is also obtained by distillation from the bark that covers the root of the cinnamon tree, but this is of very inferior quality, and possesses a camphor-like scent. When the leaves of the cinnamon tree are distilled with water an essential oil of an inferior description, known as cinnamon leaf, is obtained. This essential oil possesses a very powerful flavour, similar to that yielded by cloves or pimento, and is therefore sometimes called oil of cloves.

GINGER.

Ginger is the dried underground stem of the *Zingiber officinale*. This plant, which is believed to be a native of Asia, grows in tropical climates. The best kind is imported from the West Indies, and is known as Jamaica ginger. A considerable quantity is also obtained from the East Indies and from Africa, but is of inferior quality. Ginger is liable to be attacked by worms, and this is especially the case with the East Indian kinds.

Ginger is divided into the white and black kinds, although the so-called "black" ginger is not really black, but only of a dark, dusky stone colour. The difference between the two kinds depends only on the manner in which the root is prepared, and also on the fact that none but the most perfect and best shaped roots are selected for the white ginger, while the most inferior kinds are used for the black. In the preparation of white ginger the roots are not dug up until the stalks have withered; the outer covering or bark is then very carefully scraped off, and the root is dried; while to produce black ginger, the roots are only immersed in boiling water to destroy their vitality, and then dried by being exposed to the action of the sun.

White ginger is considerably stronger than black, and also possesses a pleasanter taste. The best kind is known as unbleached Jamaica ginger. It is met with in large pieces, which, when cut, are soft, and its surface is of a bright but pale yellow appearance, and when bent it breaks with a fibrous fracture.

Black ginger is often "dressed" in various ways to resemble white ginger. Sometimes it is immersed in lime and water, and is then called "whitewashed ginger." Ginger thus treated may be detected at once by a practised eye, owing to its chalky appearance. Occasionally dark ginger is washed in water and coated with magnesia, and is then known as washed ginger. At other times it is bleached with a solution of chloride of lime, or by being exposed to the vapour from burning sulphur, and is then known as "bleached ginger."

Powdered ginger is usually prepared from the shrivelled pieces, which from their bad appearance would be otherwise unsaleable. It is often adulterated with East Indian arrow-root, common wheat-flour, and plantain meal.

Preserved ginger is imported into this country from the West Indies and China as a sweetmeat or preserve. When of the best quality it is of a bright yellow colour and slightly transparent. To prepare this ginger the roots are taken when very young and full of sap. They are then immersed first in boiling water and then in cold. The outer covering is then removed and they are again placed in cold water, where they must remain for three or four days. During that time the water must be occasionally changed. They are then placed in a jar and

weak syrup poured over them, and allowed to remain for a day or two. The syrup is then poured off and replaced by stronger. This has to be repeated several times, during which the strength of the syrup must be continually increased until it becomes at last as strong as possible. The syrups that have been thus employed are then fermented into a liquor known as "cool drink."

Inferior kinds of preserved ginger, which are fibrous, stringy, and of a dark colour, are occasionally to be met with in shops. This article is also sometimes imitated with the stalks of the lettuce when running to seed, preserved in strong syrup flavoured with ginger.

SAVOURY PIES.

Bride Pie.—Boil some veal sweetbreads and pieces of lamb in water until they are half done, and cut them into slices. Mix with them some slices of blanched ox palate, streaky bacon, a pint of oysters, and some roast chestnuts, and season them with salt, mace, and nutmeg. When the pie is full, lay slices of butter on the top of it, cover it with paste, and bake it. When done, cut up the lid, and put into the pie some raw eggs beaten up with butter, the juice of a lemon and white wine.

To make a Pork and Apple Pie.—Cut the pork in thin slices, and season it with salt and pepper, and put it in a pie-dish with sliced apples. Pour over them some white wine, sweeten with sugar, add some butter, and cover the dish with pie-crust. Afterwards bake the pie in a hot oven.

Lamb and Currant Pie.—Chop small some slices of lamb with sweet herbs. Pour them in a dish with currants, and season them with salt and nutmeg. Then beat up some eggs in white wine, and pour it over them. Cover the dish with paste, bake it, and send it to table with white wine and sugar.

Rabbit Pie.—Make a paste of half a pound of suet dripping, lard, or butter, and half a quarter of flour, and roll it out into a sheet of the proper thickness. Smear the edge of a pie-dish with dripping, and cover it with a strip of paste. Lay at the bottom of the dish some potatoes cut in slices, and having cut up the rabbit, put it on them, season with pepper and salt, pour on them about half a pint of liquor in which meat has been boiled, if you have it, or plain water. Cover the pie with paste, and bake it for two hours.

Ham Pie.—Boil a ham until tender, and having taken off the skin, put it in a deep pie-dish, with half a pound of butter and a pint of water, cover it with puff-paste and bake it.

Hare Pie.—Skin, cut a hare in pieces, and season it with salt and pepper. Put it into a pie with a pound of beef suet, or marrow cut small, together with some marjoram, parsley, and shalots, and bake it. While the pie is still hot, open it, and pour into it some melted butter.

Herring Pie.—Select some herrings with soft roes, slit them down the middle, and take out the bones, and season them with salt and pepper. Cover the bottom of the pie with some butter and flour, and cover it with some apples and onions, cut very small and well mixed. Lay the herrings on it, and cover with more of the mince. Sprinkle the surface with grated nutmeg and lemon-peel. Cover it with paste and bake it.

Lumber Pie.—Mince together equal weights of cold meat and suet. Season it with sweet herbs cut small, and some spice and salt. Make them into a paste, with raw eggs, and roll it into balls the size of small eggs. Then put them into a pie with raisins, currants, and butter, and bake it. Before sending it to table, pour into it some wine boiled with sugar and butter, and afterwards mixed with a few raw eggs.

Dartmouth Pie.—Mince a pound of beef suet with twice

that quantity of lean mutton, and season them with salt and nutmeg, mix with them a pound of currants, and four ounces of sugar; put them into a dish, cover them with paste, and bake them for an hour and a half.

The paste for this pie is prepared by boiling one part of butter and two of beef suet in water, and then kneading it with the flour.

Doulet Pie.—Mince some roast or boiled veal with beef suet, and sweet herbs, and season them with nutmeg and spice. Make them into a paste with some raw eggs beaten up, arrange them in the pie, and throw plums over them. Bake the pie, and while still hot, pour into it some white wine, sugar, and butter.

Potato and Sausage-meat Pie.—Well butter the inside of a pie-dish, and fill it with potatoes mashed in butter, mixed with sausage-meat. Season it with salt and pepper, cover it with paste, and bake it.

Another way to Make a Mashed Potato Pie.—Cover the inside of the pie-dish with butter, and put in some mashed potatoes, with pieces of marrow, and hard-boiled eggs cut in pieces. Sweeten it, and add some pieces of candied orange, citron, and lemon-peel. Cover the pie with paste and let it bake in a moderately-heated oven.

Marrow Pies.—Cut some veal and suet into mincemeat, season them with salt, pepper, and nutmeg. Mix with them some boiled veal sweetbreads, cut small, some hard-boiled eggs cut into quarters, sliced potatoes, and pieces of marrow. Put these materials into a pie-dish, cover them with paste, and bake them at a moderate heat.

Potato Pie.—Cover the inside of a dish with butter, and put in some well-boiled potatoes. Then lay over them some marrow, hard-boiled eggs, blanched almonds, dates, and pieces of candied orange, citron, and lemon-peel, and some spice. Put more butter on the surface, cover the dish with paste, and bake it.

Another Way to Make Potato Pie.—Mix the boiled potatoes with salt, pepper, nutmeg, and cinnamon, and put them in a pie-dish, previously buttered. Lay on them some marrow, sliced dates, butter, and lemons cut in slices, and proceed as previously directed.

To Make Paste for Meat or Fruit Pies.—Mix the eighth part of a peck of flour with some cream and raw eggs; then add half a pound of butter broken in pieces, which must not be too small, and roll the paste lightly. Paste for custards is made by mixing the flour with boiling water and butter, and in which sugar has been dissolved, if necessary. If this is done, it will be found to increase the stiffness of the paste. *Paste for tarts* is made in a similar manner.

A Rich Paste for Pasties may be prepared by the addition of a little more butter to the same quantity of ingredients, the materials being then well worked together with some cold water.

An Excellent Puff-paste is made by mixing the white of four eggs, and half a pound of butter, with six handfuls of flour. Make the paste wet with cold water, roll it out, and lay on it half a pound more butter, broken into pieces. Fold up the paste, sprinkle it with flour, and roll it out again. Then again cover it with another half-pound of butter, and fold it up. Continue to do this until three half-pounds of butter have been used.

White Puff-paste is made by making a pound of fine white flour into a paste by the addition of the whites of three eggs beaten up with cold water. Mix the paste gradually with a pound of butter, and roll it out five or six times, a portion of the butter being added each time. It should be remembered, in making this paste, to keep the butter as cool as possible in summer; but in winter, to soften it by beating it out. When it is desired to have a *flakey paste*, the following method may be employed. Beat up one egg in froth with water, make a pint of flour into paste with it, and roll it out with an ounce of butter. Repeat this six times, adding an ounce of butter each time.

CAGE-BIRDS.—XIII.

• • THE BLACKBIRD (*Turdus merula*).

THE old English and Scotch writers used to term this bird the "merle." It is about nine and a half inches long, four inches of which measurement belong to the tail. The beak is yellow, about an inch long; the iris dark brown; the eyelids are yellow; the legs black; the plumage glossy black. The female is lighter than the male, of a brownish black; the belly, greyish; the throat spotted with dark and light brown. When wild it eats berries and insects. In confinement it is fed on German paste, bread and hempseed, small pieces of meat, grated nut of liver, potatoes, &c.

This bird is found in various parts of Germany, and as far north as Sweden. In this country it is found at all seasons of the year. It builds a nest sometimes in a thick bush, or in a heap of boughs; the inside is lined with hair, fine hay, and wool; the outside of moss, mud, &c. The eggs are of a bluish green, with brown spots or lines. Some of the birds begin to lay in the month of March. Young birds should be taken from the nest when the quills begin to spring (at about a week old). The young birds should be fed on fig-dust, moistened and made into a soft paste, in which scraped lean beef has been inserted and mixed; if fed three or four times each day they will begin to feed themselves when about five weeks old.

The easiest method of distinguishing the male from the female nestling is, when the bird is about a month old, to pluck a few feathers from its breast. When the feathers return the male's will be black, and the female's brown; but generally the male by that time will warble sufficiently to satisfy you as to his sex.

Various writers have described the song of this bird. It is said to be loud and continuous, rich and mellow; a golden chain of melody which binds into one harmonious whole the warblings of the various feathered performers. The blackbird's song is also described as humorous, audacious, rollicking, all but articulate.

We have heard a blackbird which had been taught the gamut; several musicians heard the bird, and stated that it ascended and descended the scale accurately. It never attempted any other kind of song. It was purchased by a musician. Many remarkable instances of the facility with which blackbirds learn tunes are on record.

There are sometimes found white, yellow, pied, and variegated birds of this species, which, being rare, are considered valuable.

Thrushes, blackbirds, &c., though they may commit havoc in the autumn months by devouring fruit and berries, yet do good service to agriculturists and gardeners, by clearing orchards and other places of snails, worms, and destructive insects. A naturalist says, "The good things which birds enjoy they are entitled to, as they are as much the property of the bird as the man." This, however, is the naturalist's view of the matter, and may not be accepted by owners of fruit-trees. But, certainly, when domesticated, the blackbird has few superiors.

JEWELLERY.—I.

THE trade or art of the jeweller is divisible into two distinct branches—the manufacture of genuine and that of imitation jewellery. In the first of these branches, the precious metals—gold and silver—mixed with various proportions of alloy, together with precious stones, are employed; in the other, a species of brass, gilded or silvered over to resemble gold or silver, and artificial stones, which approach gems themselves in showiness, though not in real beauty, hardness, or durability, are made use of. With regard to the second branch of this art, while the materials are of little value, most graceful forms are produced by the skill of able artists. In France this branch of the art has attained to great perfection, and has formed the foundation of an immense manufacture.

The four great divisions of the art comprise:—

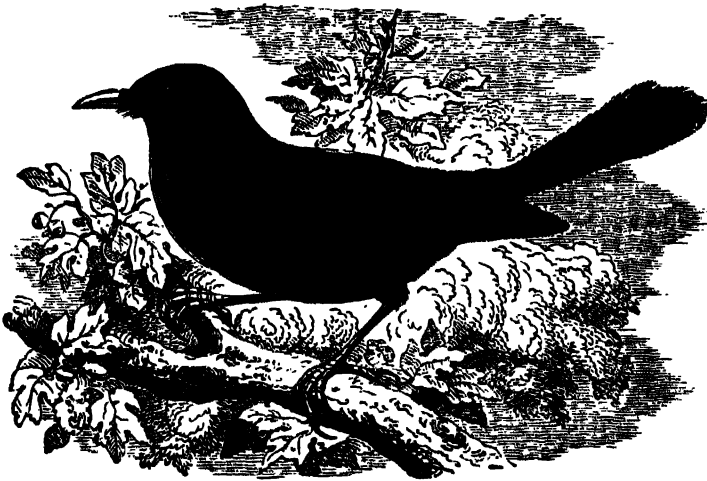
1. The metals—gold and silver; the alloys employed; the colouring of gold; artificial gold; and the processes of gilding and silvering, including electro-plating.
2. The obtaining of the desired form by means of "rolling," "moulding," "drawing," "stamping," and "engraving."
3. The soldering of the parts together.
4. The stones and their setting.

METALS—GOLD.

A metal of the most unalterable nature, and susceptible of the highest finish and greatest resplendency, is the first condition requisite for the formation of articles of jewellery. For these reasons it is that gold and silver are the metals employed; the former beautiful substance is justly ranked as the most precious, as well as the most imperishable and the

most easily worked of metals. The only means by which these metals can be substituted is by giving to brass or alloys their appearance by covering these with thin layers of the precious metals.

Gold is generally found in small grains or scales, known as *gold dust*, sometimes in particles so minute as to be invisible, but occasionally in pieces of considerable size, termed *nuggets*. It is never quite pure in its natural condition, being as a rule alloyed with silver, and frequently containing, likewise, small proportions of copper or iron. It is often found in Siberia, associated with platinum. In the Gongo Soco mines in Brazil, an alloy of gold and palladium, having a pale yellow colour, occurs. A somewhat similar mixture is found in Columbia, the palladium being substituted by rhodium, a rare metal; and in Hungary gold is found in combination with tellurium. The specific gravity of gold in its native state is from 13.3 to 18.5. As we have stated, silver is the principal ingredient existing in combination with gold; and its proportion is from one to fifty per cent. This proportion not only varies materially in specimens of gold obtained from different regions, but even to some extent in specimens from the same district. The composition of gold from the same parts is very constant, so much so, that the knowledge of the locality is often sufficient to enable an assayer to determine the quantity of gold contained in the compound.



THE BLACKBIRD.

The golds of Australia and California both contain silver; but that of Australia is noted for being remarkably pure.

The gold which is used in the currency, as well as in the manufacture of jewellery, is never absolutely pure, being always, like native gold, alloyed with some other metal, such as copper or silver, which is added for the purpose of giving it the requisite hardness. The proportions of the metals which enter into these alloys will be explained when speaking of the *alloys* of gold.

Pure gold is of a rich, reddish yellow colour, and high metallic lustre. In a state of powder it is brown and dull, but acquires the metallic lustre by pressure. In its least dense state after fusion, its specific gravity is 19·2, but it may be brought to 19·3 or 19·4 by hammering and rolling. It fuses at a bright red or a white heat, the temperature of which is estimated at 2016° Fahr., and, when in fusion it is of a brilliant greenish colour. It contracts on cooling, and when the process is slowly conducted, it forms crystals of a quadrangular pyramidal shape. It is volatile under very great heat. The discharge of a powerful electric battery reduces a gold wire to vapour; and if a sheet of paper be placed just under the wire, a broad dark purple stain, produced by the finely-divided gold, indicates the course of the discharge. If silver-leaf be placed on the paper, it will be gilt by the operation; but of this we shall have occasion fully to speak when we come to treat of electro-gilding and silvering.

Gold is the most malleable of all metals, and may be beaten out into leaves of not more than the 290,000th of an inch in thickness; a single grain may be drawn out into a wire of more than 500 feet in length, or extended over 56 square inches of surface; indeed, the process of gilding proves the extensibility of gold. When precipitated chemically, gold changes into a brown powder, which assumes the peculiar hue and lustre of malleable gold under the burnisher. It can be welded together by percussion, and becomes perfectly aggregated if brought to a red heat before being hammered a second time, although not raised to the point of fusion. Gold does not combine directly with oxygen; at any temperature it does not decompose sulphuretted hydrogen, neither is it itself acted upon by sulphur, nor by sulphuric, nitric, or muriatic acids. It is easily affected at ordinary temperatures by chlorine and bromine; iodine acts upon it but weakly. It is readily dissolved by nitro-muriatic acid. Muriatic acid, if peroxide of manganese, or any other substance capable of liberating its chlorine, be added to it, will also dissolve gold.

To recover the gold, the liquor is diluted with at least twice its bulk of boiling water. A solution of very pure protosulphate of iron is then poured into it. The precipitated gold is washed upon a filter, dried, and purified by fusing in a crucible, along with a mixture of equal parts of nitrate and bichlorate of soda.

The form in which gold generally comes into the hands of the jeweller is in ingots, approaching purity, or twenty-four carats fine. The jeweller first alloys this gold with copper or silver, or both, in certain proportions, with a view of either reducing it to the legal standard, or so as to give it the exact colour required. It is therefore necessary first to mention the alloys of gold, and then we shall be able to understand better the compositions which produce the several colours most usually required in articles of jewellery.

Alloys of Gold.—In all applications where hardness is a desirable quality, two or more metals are combined so as to form an alloy. Already several hundred different alloys have been made, of which sixty alone have been studied, and thousands more are possible. The power of forming alloys is highly valuable to the manufacturer, because he is enabled by it to make as it were new kinds of metal.

Alloys are, without exception, more fusible than the superior metal with which they are mixed; therefore the fusing point of an alloy is lower than that of the less fusible metal with which it combines. Should the alloy and the metal be both of nearly the same fusibility, the alloy will fuse at a lower temperature than the point at which the less fusible metal fuses.

By the addition of inferior metals gold is deteriorated, and therefore the alloys of gold are of very little importance, with the exception of those formed with silver and copper, which lend gold increased hardness and durability. Pure unalloyed gold of itself, if worked up into articles of jewellery, breaks away and wears a battered appearance after being in wear a limited term of years, say from six to ten. By the admixture of silver, gold receives a pale, greenish colour, such as may be seen in the gold coinage of George IV., and in many articles of ordinary jewellery. For English standard gold the proportion of alloy is one-twelfth, which is now always copper, and which gives to gold the more deeply coloured and richer appearance that is seen in the sovereign of the present reign. The alloy must be perfectly homogeneous to admit of the gold being easily worked. The jeweller accordingly brings it to this state by repeated fusions. In case the alloy has been badly made, and still exhibits a grainy appearance, with a liability to crack under the action of the hammer, or between the laminating rollers, it must be put back into the crucible, and thoroughly fused with a mixture of borax and saltpetre.

The following table shows the alloys and their proportions for forming the right compositions for the several coloured golds used by the jeweller:—

Colours.		Composition.
1. Yellow Gold	... ..	Pure or fine gold, 1,000.
2. Red Gold	... ..	Fine gold, 750; rose copper, 250.
3. Green Gold	... ..	Fine gold, 750; silver, 250.
4. Dead-leaf Gold	... ..	Fine gold, 700; silver, 300.
5. Water-green Gold	... ..	Fine gold, 600; silver, 400.
6. White Gold	... ..	{ An alloy of gold and silver, in which the latter predominates.
7. Blue Gold	... ..
		Fine gold, 750; iron, 250.

The last-named composition presents great difficulties in preparation, which is effected by introducing thick iron wire into the melted gold, and withdrawing the crucible from the fire as soon as the alloy is formed. After it has been poured out and become cool, it should exhibit no appearance of porosity. The gold is then ready to be wrought and made into sheets or wires of different thicknesses.

The assay of gold, although very simple in principle, still requires a considerable amount of skill. The standard of great quantities may be determined by a skilful assayer from the sample of a few grains. Gold, like silver and platinum, when exposed to the air, either in the solid state or in a state of fusion, does not oxidise as other metals; whence these three are called the perfect or noble metals. The following is the principle of assaying:—If an alloy of gold be melted in contact with the air, the inferior metal gradually becomes oxidised, and rises in scales to the surface, whence it can be removed from time to time until the superior metal alone remains. Some of the baser metals, such as copper, oxidise very slowly. If the proportion of copper be small, separation by heat alone is impossible. It is, therefore, necessary to add to the mixture lead or bismuth, or some other metal which oxidises readily, and then the more refractory metal oxidises with greater ease. Hence the old chemists termed litharge, or oxide of lead, “the bath” of the noble metals, from their property of cleansing them, so to speak, from their alloys of base metal.

When small samples only are operated on, a process termed cupellation is adopted, which is performed in a small furnace.



READY FOR THE BALL

(To See How We Look)

SOCIETY.—VI.

"AT HOMES," GARDEN PARTIES, AND BALLS.

IN the foregoing articles upon some of the customs generally observed by people in good society, the subject of entertainments has been incidentally glanced at: it now becomes necessary to state in what respects various entertainments essentially differ from each other.

"At homes" are the latest and most fashionable mode of receiving friends, and afford a greater latitude of choice in the amusements provided than any other description of reception. An "at home" may consist simply in a hostess remaining in her drawing-room to receive visitors on specified days; or a decided character may be given to the reception, by notifying on the cards issued the sort of amusements that will be provided. Without such notification, conversation and very slight refreshments are the only means employed to entertain people; in the latter case, arrangements will of course have to be made to carry out the entertainment successfully.

Afternoon "at homes" of late years have been frequently distinguished by the term of "kettledrum" or "drum." The latter is a revival of an old-fashioned term for assemblies much in vogue in the last century. The modern kettledrum is simply an unceremonious afternoon tea-party, at which visitors attend between the hours of four and seven o'clock. Tea, with the usual accompaniments, is generally served in the drawing-room, from an "occasional table" set aside for the purpose. Servants wait upon the company. The guests wear morning dress, and enter and leave at their convenience. Gentlemen take their hats with them into the drawing-room, and ladies wear their bonnets.

"Garden parties," during the summer months are a very fashionable form of "at homes," and are especially suited to inhabitants of suburban villas, and gentlemen's country houses. The marked preference which the highest lady of the land has shown for these entertainments has caused the fashion to extend rapidly wherever such receptions are practicable. Croquet and archery are the most popular features at such assemblies. If the house be large enough, refreshments of a light and elegant kind are served in the dining-room; if not, a marquee should be erected on the lawn for the purpose. No fixed time is appointed for taking refreshment. Tea, coffee, biscuits, ices, strawberries and cream, sandwiches, &c., are supplied to the guests as wanted, by servants in attendance. The dress worn on such occasions should be of a kind that is suitable for a fête or flower-show. Gentlemen wear frock coats.

Successful "at homes," of whatever kind, are the result of a combination of circumstances that unknown people in society rarely enjoy. In the first place, celebrities of some kind or degree are indispensable to prove an attraction. Popular musicians, famous travellers, well-known speakers, missionaries, or persons whose names are identified with the interests of whatever section of society the host or hostess may belong to, will always be found acquisitions. In the absence of such resources, the hostess should possess a large amount of tact to put strangers on an easy footing with each other. She and the host should be unceasing in their endeavours to put people at their ease. Simply opening a suite of well-furnished, well-lighted, and gaily-decorated rooms will not answer the purpose. Desirable people should be made acquainted with each other, and topics of conversation started amongst the silent coteries always to be found in the least-frequented corners of the apartments. Except in the highest and most exclusive circles of society, personal introductions at parties are not considered so absolutely necessary before strangers address each other as was the case a few years ago. The fact of being assembled beneath the roof of a common friend or acquaintance is rightly considered

sufficient guarantee of respectability, and well-mannered people adapt themselves to circumstances accordingly.

Amongst the formal modes of reception, the dinner-party and ball are the most popular. The former kind of entertainment having been fully described in some former numbers of the *HOUSEHOLD GUIDE*, we will proceed to describe the observances of the ball-room. Invitations should be issued at least three weeks before the time appointed. The usual form of invitation-card is best, with "dancing" in the corner. Of course, a reply to such invitations should be sent without delay. If a large company be expected, the room selected for dancing in should be cleared of every article of furniture likely to impede the movements of the dancers. Bare boards are no longer in favour, however smooth the flooring may be. Neither should people be expected to dance on a carpet. Although clean, unless a carpet be quite new, dust and, consequently, liability to soil dresses are unavoidable. The right plan is to have a linen drugget or glazed holland strained over the ordinary carpet. This effectually keeps the dust from rising, and ensures a smooth agreeable surface for the dancers. The hearth-rug and fender should be removed, and the fire-place, except in winter, filled with evergreens and flowers.

PLAIN NEEDLEWORK.—II.

LADIES' UNDERCLOTHING (*continued from p. 189*).

To prevent the waist appearing unduly large, set the drawers on sloping bands, only one inch wide if worn under the stays, two inches wide if worn over the stays. A sloping band for a person of good figure is nearly round, inclining towards oval; Fig. 1 gives an idea of it. To take a pattern, fit the paper and afterwards some lining on the person, as seen in Fig. 2, getting the shape exactly just below the waist only, for it has a tendency to drop lower and lower. It is best to set all the bands thus sloped in piping, top and bottom. Sloping bands are all cut on the cross, and are generally double; if flannel, single is sufficient. Set all the petticoats, upper and under, on sloped bands, and have a stay-hook to place them under in front. Have nothing over the waist of the stays but the petticoat body and the dress itself.

The stays are a most important item of the figure. English stays are all made straight. They form no waist, and press the rib-bones of the figure at the very part where it is most important there should be room. Many of the cheaper sorts of French stays err in dipping in in front, like Fig. 3, which leaves the back projecting, the stomach forward, the head poking, and, what is more serious, interferes with digestion. Fig. 4, with a fall in the back, a flow of the skirt behind, and the head erect, is the correct position.

We now arrive at petticoat bodies. Under high dresses these should be made high. They are to be cut and made in every respect like a dress-body, which we shall presently describe. Pipe the neck, armholes, and waist, for a dress. Cut a basque to fit the figure in three pieces, one back and two fronts. Fig. 11 shows one of the fronts; Fig. 12 the complete back. Stitch them together, hem them all round. Run them to the piped edge of the body. Take an inch-wide tape, hem or run it over the piping and down to the body on the wrong side. Or the body may be made like a dress in a band. Do not then pipe the edge, but run on the basque. Line with tape as before.

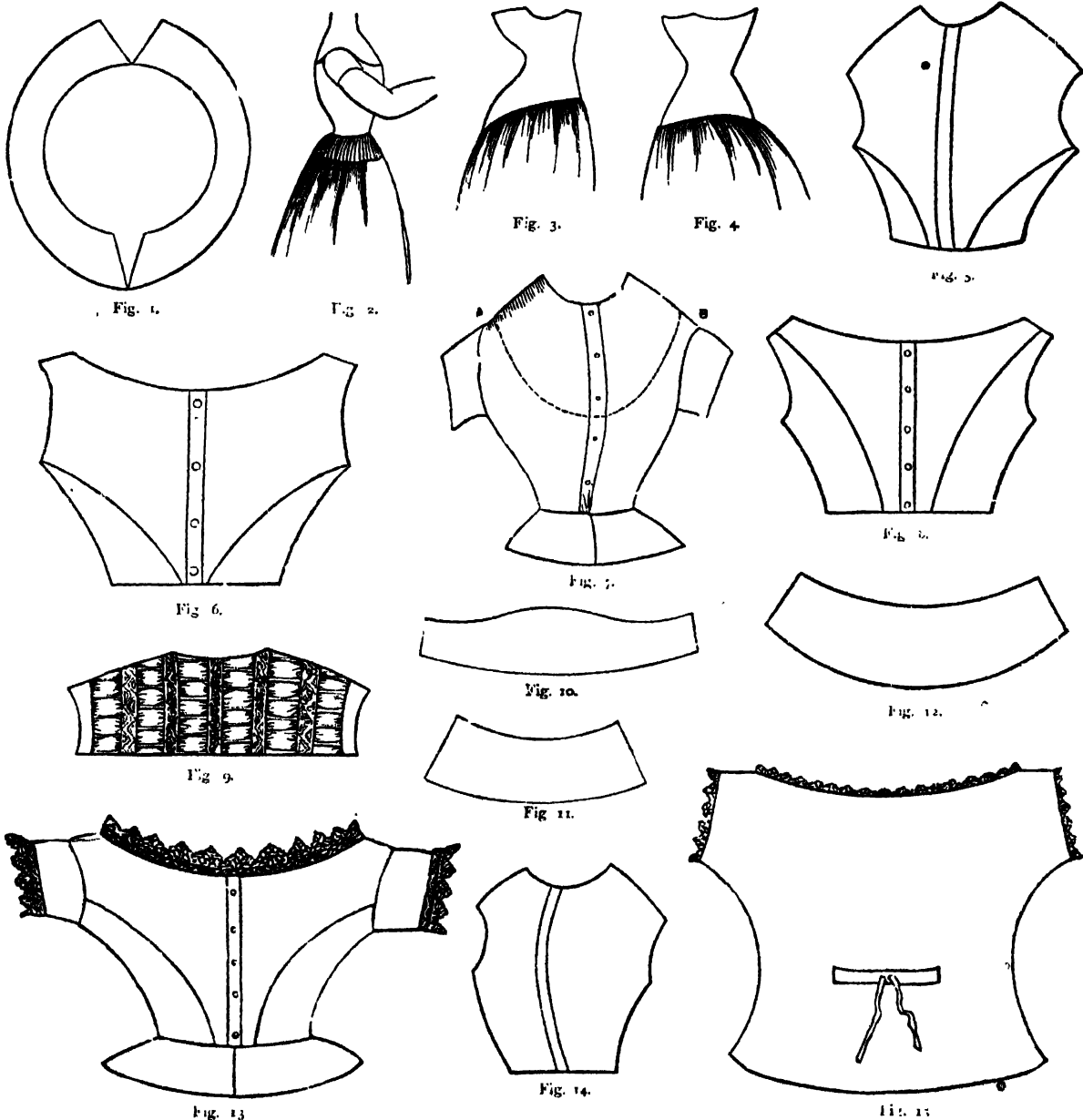
The set of the body depends on plenty of buttons in front. These should be from five to seven, between a sixpence and a shilling in size. They cannot be too close; they may be too far apart.

The piping of the neck may be hemmed down narrow, or run over with a narrow, soft, twilled tape.

The sleeves are short, and cut on the cross. Stitch them

together. The hem must be turned over and full in. The sleeve should fit the armhole easily. Stitch it in. Fig. 10 is a pattern for the sleeve. Fig. 7 is the body. A low petticoat body may be cut from the same pattern, by the dotted line A to B, and piped round the top; or by Figs. 6 and 8, in which it will be seen that the side-pieces are

in which blue velvet ribbon is run to draw the top round the neck. The sleeves correspond in every particular with the top of the body. Muslin embroidery may take the place of the lace. Fig. 15 is a camisole under-body. This is cut precisely like the top of a chemise. It is placed in a band at the neck, where it is not full, but cut the



put in as backs are put on, either above or below the arm. Low dress bodies should always be made in this way, and not with darts. Again, some persons wear the front of a body straight, as in Fig. 5; some require the front rounded, to fit like Fig. 14. Fig. 5 is an example of a high body made with side-pieces, which is considered a superior cut, and looks particularly well on a stout, short-waisted person. We are, however, here trenching on dressmaking, and shall have occasion to refer back to these diagrams.

Fig. 13 is a very pretty pattern for a petticoat body under a muslin Garibaldi. It is edged with a row of Maltese insertion, and above that a row of Maltese lace,

size of the neck. The band may be plain or embroidered, but an embroidered or lace edge is *de rigueur*. Fell the side seams. The sleeves are not added, but cut in one. A band-case is placed on the centre of the back; a corresponding one is in front. The latter has a central hole to admit a tape, which is inserted all round and draws the camisole to the waist. A camisole makes the figure look fuller than a bodice. To a slight figure it is an improvement, especially if bodies cannot be got to fit very well, but it has a tendency to enlarge the waist by its folds. It should, therefore, be of the finest material. When desired to increase the fulness of the figure, have the camisole

well starched, which will keep out the upper portion of the figure, whilst the lower part, by its fineness, will yield under the dress. The dress, with body and skirt separate, by the use of two bands, tends to enlarge the waist. To keep the latter small, therefore, have both sewn on one band, or have the under-skirt on a sloping band for a short skirt. In a long dress, especially of silk, the length of the waist generally admits of the skirt falling a little below the bodice. The waistband unites the two.

Night-dresses.—Night-dresses for ladies may be made

the other gown, when it is undesirable to move the wearer to make a complete change. All these night-dresses are made with gores. The shop-made night-dress, however, usually has no gores; there is little work and little stuff in it. A piece of longcloth, the length of the wearer, double, is cut off. This is cut in half. The selvages are only sewn together, not run and sewn. Enough is left open for the sleeves. Shoulder-pieces are made and put on, the neck hollowed and set in a band. A little collar may be added, or only a frill. First hem the

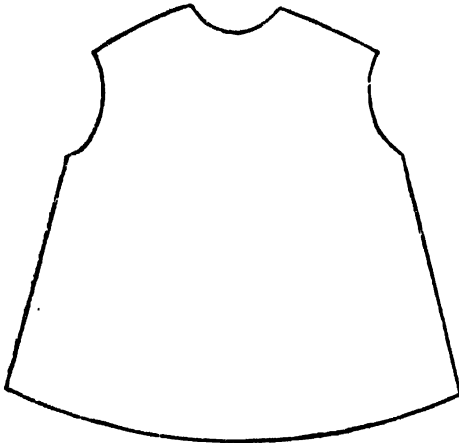


Fig. 16.

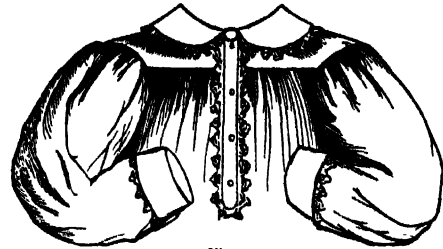


Fig. 17.

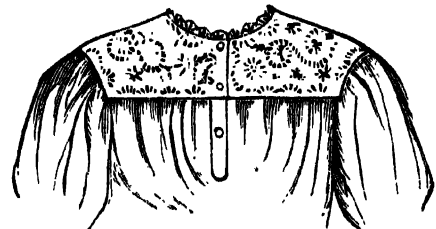


Fig. 18.

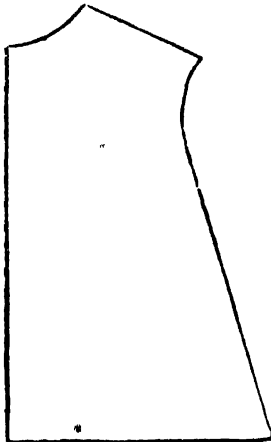


Fig. 19.



Fig. 20.

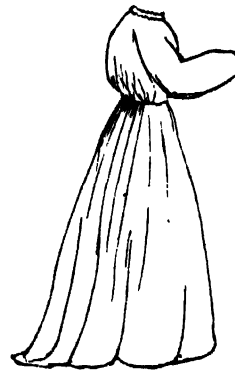


Fig. 21.



Fig. 22.

from any of the patterns for girls' night-dresses which we have given, by increasing the proportion. Fancy night-dresses are made in such unmentionable variety it would be impossible to attempt to describe them. The usual night-dress, suitable for ordinary wear or for a trousseau, is that made with a yoke, piped, an embroidered frill round the centre-piece, the collar, and cuffs (see Fig. 17). A gown may be made with an embroidered yoke, and only a frill round the neck, as Fig. 18; or of alternate rows of embroidery or lace and tucks, as Fig. 9, with or without a collar. Or it may be made with shoulder-pieces, and a front with strips of insertion let in, as a gentleman's shirt is made. These may be merely strips of insertion, or else narrow tucks. Some ladies like collars and cuffs to night-dresses. Some prefer only frills. Night-dresses are made to the ground, measured on a person standing. Short night-dresses are made over the hips, and are used in illness and at other times over

the other gown, when it is undesirable to move the wearer to make a complete change. All these night-dresses are made with gores. The shop-made night-dress, however, usually has no gores; there is little work and little stuff in it. A piece of longcloth, the length of the wearer, double, is cut off. This is cut in half. The selvages are only sewn together, not run and sewn. Enough is left open for the sleeves. Shoulder-pieces are made and put on, the neck hollowed and set in a band. A little collar may be added, or only a frill. First hem the front opening, broad one side, narrow the other. Trim the outer edge only of the broad hem. Cut the sleeves wide enough to run and fell into the armhole plain. Put them into slip bands at the wrist, with or without a cuff. The sleeves of better made gowns are full enough to be gathered in a little on the top. This easily-made gown may be a useful pattern to many busy persons compelled to make their own. It is not so well suited to a stout figure as if set in a yoke-piece, as nothing is allowed for the round of the shape, nor, indeed, is the skirt at all full.

Ladies during convalescence usually wear loose, square, short jackets for sitting up in bed, over the night-dress. These may be of white or coloured cashmere, plain, lined, or quilted, according to requirement. Some effective trimming is desirable, such as a row of two-inch wide coloured or plaid ribbon, &c. Figs. 16 and 19 are a good pattern for such a jacket. The sleeve is best of the coat shape. Fig. 19 is the front, single; Fig. 16, the entire back.

Dressing-gowns and morning-gowns are most useful articles of the toilette. They are generally made of flannel, coloured cashmere, linen, or print. Some are of quilted silk or quilted black alpaca. According as they are made, they can be worn all the morning indoors or even outdoors, and in the evening the dress may be removed and the loose gown resumed.

Fig. 20 is the gown made with a yoke-piece, the front gored at the side, fitted plain to the yoke, and the back fixed in with three large box-pleats hanging loose, is very graceful. It is only suitable to the chamber.

Fig. 21 is a loose gown drawn in at the waist with a band. This fits on the shoulders, and is fastened into the yoke, or merely fitted at the shoulders, and left loose all the way down. Fig. 22 is a very graceful shape. In the back it fits like a princess dress, and has a full and flowing skirt. The front is loose, but can be confined by a sash. A frill is placed square round the body and round the skirt. Such a dress at the sea-side or in the country can be worn all day long.

In our remarks on keeping the size of the waist small, it must be remembered that sloping bands tend to diminish the hips; also the size of the hip by contrast renders the waist apparently smaller. For this purpose, then, use only half-inch wide sloping bands, and as they stretch, shorten the length round of them by the buttons from time to time.

COOKERY.—LXXXII.

FRENCH DISHES, ETC. (continued from p. 187).

Veau en Caisse (Veal Dressed in Oiled Paper).—Enclose a piece of fillet of veal, about the thickness of two fingers, in a sheet of paper, previously saturated with sweet oil, and made into a case. Put in with it some oil, parsley, chives, mushrooms, and shalots, previously cut small, and enough salt and pepper to season it. Grill it with a piece of oiled paper interposed between the paper case and the heated surface on which it rests. When one surface of the meat is done, turn it on the other side, and serve it as soon as ready with the juice of a lemon, or some verjuice, or vinegar. The meat may, if preferred, be wrapped in a sheet of thick paper, instead of being enclosed in a paper case.

Quasi de veau Glacé (Loin of Veau Glazed).—Cover one side of the thick end of a loin of veal with slices of bacon, and dress it as directed for *Fricandeau de Veau*. Then boil down the liquor in which it was cooked, after having skimmed off the fat, and place the meat, with the larded side underneath, in it to glaze. When ready, remove it, and pour some *jus au vin* into the stewpan, to remove any jelly that remains in it; add to it some small cucumbers, capers, and an anchovy cut small, and pour it over the meat. If more convenient, the *jus au vin* may be omitted, and some stock broth, with a glass of wine, used instead of it.

Rôti de Rognons de Veau (Veal Kidneys Roasted).—Roast the kidneys before the fire until done; then chop them up with fat, and mix them with mushrooms previously fried in butter, and cut small, and also with parsley, chives, bay-leaves, and thyme treated in a similar manner. Season these materials with salt and pepper, and make them into a paste of the proper consistence for forcemeat with the yolks of some raw eggs. Afterwards fry some slices of the crumb of bread in a pan, until they become brown, and cover them with a layer of forcemeat of the thickness of a finger, and sprinkle bread-crumbs over them. Then apply some raw eggs, beaten up, to the surface, and again throw crumbs of bread over it. Place the pieces of bread thus prepared on a dish, put it on some live cinders, and cover it with a hot cover.

Ris de Veau en Fricandeau (Veal Sweetbreads Dressed as Fricandeau).—Clean and blanch two veal sweetbreads, and cover them with bacon sprinkled over with parsley,

chives, thyme, and bay-leaves, chopped up small. Put some slices of bacon at the bottom of a stewpan, and lay the sweetbreads on it, and cover them with more slices of bacon. Add some stock broth and white wine, equal parts of each, seasoned with salt and pepper. Place in with it also some slices of lemon, from which the seeds and white portion have been removed, or else some vinegar, or verjuice. Simmer them at a moderate heat for three-quarters of an hour, then remove the sweetbreads, evaporate the liquid in the stewpan to the consistence of jelly, and glaze the meat with it. The veal and bacon should be served with *purée d'oseille*. The jelly left at the bottom of the stewpan should be used for preparing the *purée*.

Ris de Veau Frits (Veal Sweetbreads Fried).—Take some veal sweetbreads and blanch them, or, if preferred, employ some that are already cooked. Steep them for at least an hour in a mixture of butter, thickened with flour, parsley, bay-leaves, thyme, chives, and shalots, previously cut up as small as possible, together with lemon-juice, verjuice, or vinegar and *bouillon*. Remove them, and let them drain as dry as possible, and then dip them in *pâte à frire*, and fry them until sufficiently brown. Or, if more convenient, flour may be employed instead of *pâte à frire*. *Ris de Veau Frits* should be sent to table with plenty of fried parsley.

Ragoût de Ris de Veau (Veal Sweetbreads Dressed as Ragoût).—Dress some sweetbreads in the manner directed for *Ris de Veau en Fricandeau*. Evaporate the liquor in which they were dressed, and add to them some mushrooms, chives, parsley, bay leaves, and thyme, with enough pepper and salt to season them. When the mushrooms are dressed sufficiently, and the liquid brought to the consistence of a sauce, add some butter thickened with flour, or else some *jus blond*, boil the whole for a short time, and then pour it over the sweetbreads cut into pieces.

Veau en Fricandeau (Hashed Veal).—Take a slice of veal about two fingers thick, trim it, and cover it with slices of bacon. Place the meat in a stewpan, with the bacon at the top, together with parsley, chives, bay-leaves, and thyme, some butter and salt and pepper. Add some *bouillon*, and simmer it at a gentle heat. When the veal is done, fry it in another stewpan with some butter, the bacon being underneath, and colour it with burnt sugar and butter. The gravy in which the meat has been cooked should then be skimmed, and mixed with a dish of spinach, or other vegetable; and the veal placed in it when sent to table.

Ris de Veau à la Sauce Tomate (Veal Sweetbreads with Tomato Sauce).—Dress some veal sweetbreads in the manner directed for *Ris de Veau en Fricandeau*, and serve them with thick tomato sauce.

Ris de Veau à la Purée de Lentilles (Veal Sweetbreads with Purée of Lentils).—This is prepared in a similar manner to *Ris de Veau à la Sauce Tomate*, *Purée de Lentilles* being substituted for the tomato sauce.

Ris de Veau en Caisse (Veal Sweetbreads Dressed in Paper).—Take some sweetbreads already cooked in the manner directed for *Ris de Veau en Fricandeau*, but without using any bacon, or some raw sweetbreads previously blanched in hot water. Cut them in slices, and steep them in sweet oil, mixed with lemon-juice, verjuice, or vinegar, together with salt, pepper, and parsley, thyme, bay-leaves, and chives, cut up small. Now make a case of strong paper, and oil the bottom of it, and place the sweetbreads inside it. Cover the upper surface of the meat with some butter, and sprinkle bread-crumbs over it. Then apply more butter and more bread-crumbs, and place the paper containing the meat on a gridiron, over some hot cinders, and cover it with a hot metallic cover until the sweetbreads are browned. If the sweetbreads have been only blanched, and not already cooked, a greater heat must

be employed, and the meat must be exposed a longer time to its influence than when they have been previously dressed.

*Langue de Veau en Filets (Veal Tongue in Slices).—*Boil a veal tongue in a saucepan of water until half done, then remove it from the vessel, and peel off the skin that covers it. Afterwards cut it into slices the size of a finger, and place them in a stewpan with mushrooms, chives, and parsley, cut up small. Season them with pepper and salt, pour some good oil over them, and cook them at a moderate heat. When the contents begin to boil, add a glassful of white wine, and when the tongue is nearly done, some *jus*. The juice of a lemon should also be added before sending it to table.

*Langue de Veau en Papillotes (Veal Tongue Cooked in Paper).—*Cook a veal tongue in the manner directed for *Langue de Veau à la Braise*, and cut it into rather thick slices, which may be shaped into any form desired. Cover them on both sides with butter, seasoning herbs, and mushrooms chopped up small, and bread-crumbs. Then wrap each piece in strong paper, previously dipped in oil, and grill them over a clear fire. When sufficiently done, the slices of tongue may either be served up in the paper, or arranged on a plate with the paper removed.

Langue de Bœuf en Papillotes (Beef Tongue in Paper) is prepared in the same way.

*Pieds de Veau au Naturel (Calves' Feet Boiled).—*Steep the calves' feet in hot water, clean them, and boil them in a saucepan. They are to be served up with a sauce composed of the usual seasoning herbs chopped up small, with salt, pepper, and stock broth.

HOUSEHOLD DECORATIVE ART.—LV.

TRANSPARENT PAINTING FOR BLINDS AND OTHER PURPOSES.

FROM the effect of those specimens of transparent blinds which are commonly to be seen in this country we are by no means justified in forming an estimate of the capabilities of that department of art. But little attention has been paid to it in England. Painted blinds are usually to be met with in houses of an inferior description only; and the works produced are alike deficient in technical knowledge and skill in execution, and are, moreover, generally devoid of good taste both in choice of subject and in design.

In some parts of the Continent, however, and more especially in Italy and Spain, painted transparent blinds occupy a far different position among household decorations; and by the taste shown in the designs with which they are embellished, they add materially to the beauty of the higher class of dwellings, as well as contribute to their comfort by tempering the light of summer when too brilliant. We have there seen well-conceived designs, which might serve as models, with foliage and flowers, sometimes enlivened with birds, and occasionally with suggestions of landscape in the background. The idea of these was doubtless originally suggested by the pendent leaves of the vine and the passion-flower surrounding and half obscuring the windows of country houses; and when the forms of such things are removed by art to windows looking upon the city street, their effect, beyond actual beauty, is soothing and refreshing.

The material we recommend to be employed is the fabric known as "architect's tracing-cloth," from its being used for drawing of plans, &c., which, having to be frequently handled, would be worn through if upon paper. It consists of a very fine calico, coated with a preparation of wax, and thus rendered so transparent as to admit of very delicate lines being traced through it. It is to be bought at the shops of artists' colourmen. This material requires no further preparation.

The design may, if the operator is not perfectly confident in his own skill, be first drawn upon paper, and traced on the cloth. For the actual painting it is well to have a framework made of four strips of wood upon which to fasten the cloth with tolerable tightness, just so much as is sufficient to keep it smooth, but it should not be absolutely stretched, this being likely to injure so delicate a material. With this frame placed between him and the window, the workman will be able to see the proper effect of his colours as he proceeds; though, in some instances, where long fine lines have to be drawn, he may occasionally find it a convenience to lay the work flat on a table over a sheet of white paper while he draws them.

The best vehicle, in our idea, for the colours to be used in this description of painting is gold-size of the palest colour that can be procured. This is to be preferred to any kind of varnish, as it will dry perfectly, and will not be liable—like the varnish frequently used for preparing or mixing—to adhere to the next layer of cloth when the blind is rolled up; and the light amber hue of the gold-size does not materially affect the purity of the colours.

Transparent colours only must be used, such as, for instance—for reds, carmine and crimson lake; for yellow, Italian yellow and gamboge; for green, verdigris; for blues, Prussian blue, cobalt, ultramarine, and indigo; for browns, raw and burnt sienna; for grey, lamp-black mixed with a large proportion of size; a mixture of red and yellow will give orange; red and blue, purple; and a range of warm greens may be made by adding yellow to verdigris, or any of the above-mentioned blues. Black, more or less weakened with size, will be found useful in shading many colours, or mixing with them to vary their tones. These colours should be ground in turpentine, and then gold size afterwards added.

This kind of painting, and material also, will be found equally applicable to the decoration of Chinese lanterns—which will be more enduring than the ordinary ones of paper—as also to the making of "transparencies" for employment in illuminations on festive occasions, and for transparent signs intended to be read by night, &c.

CHINA AND STONE WARE.—III.

PORCELAIN (continued from page 178).

French Porcelain.—The oldest French porcelain is that of St. Cloud, 1695. This porcelain will be found coarse, heavy and yellowish, with a thick glaze. It is a bad imitation of Chinese porcelain; but by 1759 the ware was brought to great perfection, the art of burning-in gold was added, and the factory transferred to Sèvres.

Sèvres china may be known by its domestic articles having a plain ground, decorated with delicately-painted flowers. Vases and other ornaments have grounds of various colours—blue, green, yellow, and the lovely pink colour known by the name of *rose Du Barri*, the title given it in honour of a lady at the Court. The best china is painted by first-rate artists; the subjects are cupids, flowers, birds, and landscapes, disposed in medallions. Some of the old rare specimens are of great value, the price being regulated by the beauty of the painting, the depth of the colour, and the richness of the gilding. Bouquets of flowers were at one time beautifully made at St. Cloud; but that department of the work was discontinued on the removal of the factory to Sèvres.

The French china ornamented with gilding will be known as valuable by the fact of gilding on china having been prohibited in 1766; and Sèvres china is distinguished from that of Dresden by a certain amount of stiffness and inelegance in its form. It has not the classical elegance of Dresden porcelain, but in other respects is more beautiful and more valuable. The value of Sèvres china depends on its creamy and pearly softness, the beauty of

the painting, and depth of the glaze. The finest was produced before 1804; and that ornamented with the best painting fetches the largest sums. The most rare is that painted on grounds of *bleu de roi*, *gros bleu*, turquoise, *rose Du Barri*, *jouquille*, *vert-pré*, or *œil de perdrix*. Above £1,900 have been paid for a pair of *rose Du Barri* vases; above £800 for a *bleu de roi* vase; for a cup and saucer, £160. The colours by which the most modern articles may be known are turquoise and red. Many French towns have had their china factories, but that of Sèvres has produced the porcelain of the greatest value.

From Italy we possess some beautiful specimens. Doccia, a town near Florence, has produced very fine statues and groups of porcelain figures, two or three feet high, modelled from antique specimens of art. The porcelain of Naples is distinguished by its peculiar representations of shells and coral. The ware is very thin and delicate, and elegant in form. Spanish porcelain bears a great resemblance to that of Naples; some of it is considered even more beautiful than Sèvres china. It is very rare.

English Porcelain.—At Bow and Chelsea the first manufactories of English porcelain were established. The ware was soft; it could be scratched; and was composed of white clay, fine white sand from Alum Bay (Isle of Wight), and pounded glass, which mixture produced the semi-transparency of the finest porcelain from China. As far back as 1695 a factory was established at Chelsea, the porcelain made at which had the appearance of opaque glass; but Chinese porcelain seems to have been in the first instance imitated there, especially the Nankin blue and white.

When George II. came to the throne, he followed the custom of foreign monarchs by taking under his patronage the Chelsea china factory. Workmen from Saxony were procured; and in a short time the Chelsea porcelain was considered equal, if not superior, to that of Dresden and Sèvres. But the death of its patron and other causes led to the termination of the Chelsea porcelain manufactory. The ware is now rare and valuable, and the oldest specimens of this china may be easily mistaken for French. The later specimens resemble old German ware; the vases, dishes, figures, and flowers being equal to those of Dresden. Claret is the prevailing colour of the finest old Chelsea porcelain, but all the colours are exceedingly bright and good.

From Chelsea the models for making the porcelain, with the workmen, were removed in 1771 to Derby, at which town a manufactory had been already established in 1750, and known for its fine transparent china, but it was not equal to that of Chelsea. It was extremely soft, and the predominant colours are deep blue, claret red, yellow, and sea-green, with rich and solid gilding; its ornaments will be found to consist generally of birds, especially peacocks. The Derby white biscuit figures are considered to be more beautiful and elegant than those of Sèvres.

Old Bow Porcelain.—At Bow, near Stratford, was a manufactory of porcelain of the same date as that at Chelsea; the china is very similar, but it is embossed, and the shapes are singular. It is usually ornamented with blue patterns, the white ground having a bluish cast, from the blue colour running into the glaze. The blue patterns have an appearance of softening at the edges, but the other colours being painted on the glaze are not thus absorbed. The china appears to be copied from that of Dresden, Japan, and the old German porcelain. Tea and dessert services were chiefly made at Bow, and it generally bears the mark or figure of a bee on the handle, or under the spout of the milk-jug. Some of the Bow china is ornamented with the printed designs which had been introduced at Worcester in 1752, and from the

Bow works various porcelain articles were sent to Liverpool to receive printed patterns.

The old Bow china works are considered to have been established about 1730; but the china was not brought much into notice before Heylin became the proprietor, and the ware painted by the celebrated artist Frye. In 1750 the works were conducted by Weatherby and Crowther, and a warehouse kept by them near the Tower of London; also a retail shop in Cornhill and in St. Paul's Churchyard. In 1763, Frye, who had superintended and brought the Bow china to perfection, died; Crowther was bankrupt; and in 1776 the whole concern was united to that of Derby—thus Chelsea, Bow, and Derby porcelain became, as it were, from that date one and the same.

Old Worcester china dates 1751, and is an imitation of Nankin and Japan porcelain, Dresden and Sèvres; the paste is not so fine as that of Chelsea, but it may be recognised by its beautiful *bleu de roi* and salmon-scale grounds, its birds, flowers, and insects. It was at Worcester that Dr. Wall invented the printing on china and earthenware, so generally adopted at the present time, and

there are various curious old specimens of printing in blue to imitate Nankin porcelain; also of the brighter colours of Japanese, Sèvres, and Dresden porcelain.

The soft, sea-green coloured porcelain is called "celadon;" it is old Oriental china, and the colour is applied while the clay is moist, giving it that peculiar soft appearance. It is chiefly sea-green, but any colour applied in the same manner bears the name of celadon.

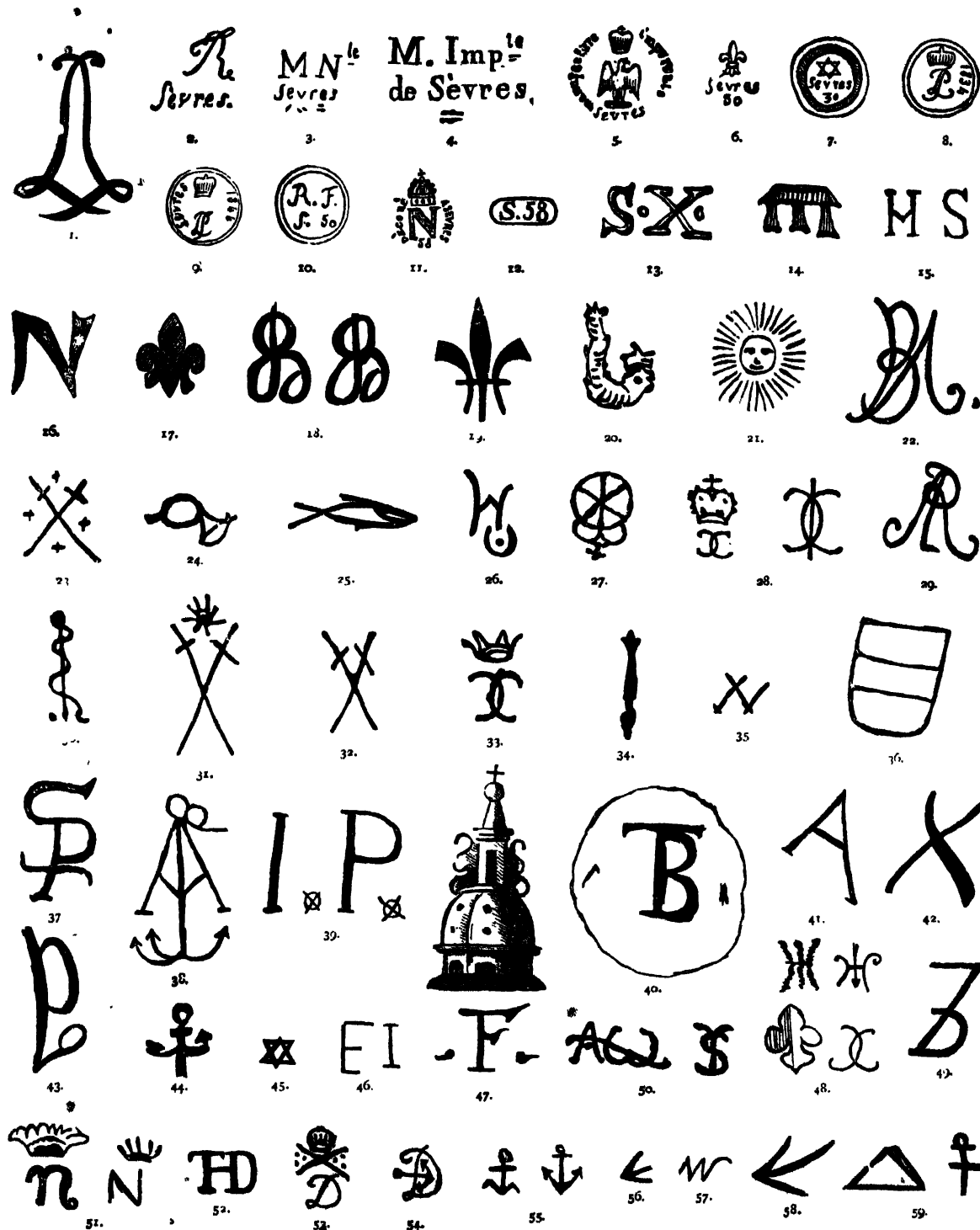
Printing on china and earthenware or pottery is effected by transfer papers from engraved copper-plates. The ink is made of linseed oil, which evaporates in the baking, leaving the colour on the porcelain.

The splendid specimens of china exhibited in the glass and china warehouses must not be mistaken for old china; they are imitations from France and some of our own English factories, and, however beautiful, are readily distinguished from real "old china."

On the opposite page we give a selection of marks by which porcelain articles can be identified, and their authenticity tested.



CIDER PITCHER, ROUEN WARE, 17TH CENTURY.



MANUFACTURERS' MARKS, FOR IDENTIFYING OLD CHINA AND PORCELAIN.

Sèvres.—1 (1753); 2 (1798—1800); 3 (1800—1804); 4 (1804—1810); 5 (1810—1814); 6, 7, 8, 9 (Louis Philippe, dated); 10 (French Republic); 11, 12 (Napoleon III.).

13. Sceaux; 14. Orleans; 15, 16. Nevers; 17. Rouen; 18. Bernard Palissy; 19. Marseilles; 20. Lille (crest of Dauphin); 21. St. Cloud; 22. Niderviller; 23. Tours; 24. Chantilly; 25. Nyon (Switzerland); 26. Charles Hannong (1721); 27. Höchst (arms of Archbishop of Mayence); 28. Ludwigsburg; 29. Dresden (Augustus Rex. of Saxony); 30, 31, 32. Dresden; 33. Niderviller; 34, 35. Berlin; 36. Vienna (1744); 37. Caffagiola; 38, 44. Venice; 39. Pesaro (1542); 40. Faenza (1500); 41. Gubbio (1498); 42, 50. Urbino; 43, 51. Naples (1560); 45, 46. Florence; 47. Medici; 48. Madrid; 49. Delft; 52. Theodore Deck.

ENGLISH WARE.—p. Derby; 54. Chelsea—Derby; 55. Chelsea, soft paste; 56. Salopian; 57. Worcester; 58. Leeds; 59. Bow.

GARDENING.—XI.

ORNAMENTAL DECIDUOUS SHRUBS AND TREES FOR SMALL PRIVATE GARDENS.

FROM the want of a sufficient knowledge of the fitness of things, grievous disappointments frequently occur to the owners of small gardens, when they find, after a few years, that the trees and shrubs they have planted with a view to their becoming "things of beauty," and a permanent joy to the eye of a cultivated taste, prove to be little better than eyesores. This arises from an injudicious selection of plants, in ignorance of the first necessities of climate and soil requisite to ensure the full development of vigour and beauty, without which scarcely any plant will become an ornament; while, on the other hand, there are very few trees and shrubs that are not objects of beauty, if they are furnished with the necessary elements of a free and vigorous growth.

The principal object of this paper is to indicate, for the guidance of the owners of small gardens, a selection of the most suitable trees and shrubs, with such descriptions as shall enable them to select such plants as may be best adapted to the general conditions of soil and climate at command.

But before proceeding to the consideration of these details, it will be well to impress on all intending planters that, in making their selection, the style and contour of the trees and shrubs should be such as will harmonise with the architectural or other permanent surroundings. Such trees and shrubs as have a decisive, uniform, and symmetrical habit of growth, whether rigidly upright or gracefully pendent, will associate harmoniously with classical architectural embellishments, statuary, and geometrical flower gardens, and will be in character and good taste when planted in proximity to most of the dwelling-houses of modern erection; while, as the distance from the house increases, the style and habit of the plants may be of a freer and more rambling or massive character. By keeping these general principles in view, and by the exercise of individual taste and judgment, considerable variety and diversity of form, colour, and foliage, forming one harmonious whole, may be secured even in a quite small garden.

Quaint old-fashioned country-houses, of a rustic character, will have their aspects and characteristics, so grateful and charming to many tastes, improved and intensified, if the leafy associates are chosen from among the many beautiful trees and shrubs that have a rambling, free, and easy style of growth, for planting in their immediate proximity; while the desire for the possession of plants of a more symmetrical habit may be gratified by grouping them in a comparatively open part of the garden, some little distance from the house, on a well-kept lawn, or in association with a group of flower-beds, so as to form a somewhat distinct feature.

It is not intended to lay down an absolute direction that plants of rigidly symmetrical shape may not be intermixed or associated with others of freer habit, for frequently, when there is no decided or marked character in the building and its surroundings, a scheme of mixed planting may be very advantageously employed in perfect good taste; but these few hints and suggestions, it is hoped, will be a guide to assist individual taste in making a selection that shall be free from incongruity and want of harmony, and will prevent the expectation of results, to be attained after a few years' growth, from ending in disappointment.

Of standard ornamental trees of deciduous habit, or such as shed the whole of their leaves annually, and that may be grown in any good garden soil of moderate depth, and attain a stately grandeur of appearance as they advance in age and size, if allowed room for development, the following are among the best:—

The Common White Horse Chestnut (*Æsculus hippocastanum*), a rapid grower that will assume a symmetrical, pyramidal form, if not crowded or overshadowed by other trees in its young state; handsome in all seasons, and peculiarly so when covered with its magnificent blossoms; attaining a free flowering condition in about ten years. These trees may be purchased for about 1s. 6d. each.

The Norway Maple (*Acer platanoides*) has a very handsome-cut leaf of a pale green, forming a pleasant relief to darker foliage in its neighbourhood. It attains a well-balanced form, frequently pyramidal. Price about 2s. each.

Catalpa syringifolia, of noble, massive appearance, forming a head, having a somewhat irregular semi-globular form, with large, heart-shaped leaves and handsome flowers, not unlike those of the horse chestnut. It will not succeed if the ground is at all water-logged in the winter, nor in the impure atmosphere of large towns. Price 2s. 6d.

The Common Lime (*Tilia Europæa*), a well-known, rapid-growing tree, of a beautiful, pale green foliage in the spring, but assuming a darker tint as the season advances. The flowers emit a very pleasant scent. Price about 1s. 6d.

The Tulip-tree (*Liriodendron tulipifera*), an upright-growing plant of light, graceful appearance, although the leaves are large. It is of comparatively slow growth, and flowers freely when ten or twelve years old; the flowers resembling the tulip, and are of a purple colour. Like the catalpa, this will not thrive in water-logged soil, nor in an impure atmosphere. Price about 3s.

The Plane-tree (*Platanus occidentalis*), a noble, large-leaved tree; one of the best for town gardens. Price 2s.

The Tree of Heaven (*Ailanthus glandulosa*), a fine, free-growing plant, with long pennate leaves, the midrib of the leaf sometimes attaining the length of two feet six inches. The divided leaflets, uniformly placed on each side, give it a peculiar and interesting appearance. Price about 2s.

The Common Birch (*Betula alba*), and the variety with a "weeping" habit of growth, called the "Lady of the Forest," are extremely graceful. Price of the first, 1s.; the second, 2s. 6d.

The Deciduous Cypress (*Cupressus disticha*), a plant with feathery foliage of a delicate pale green; the plant being of an elongated pyramidal contour, very handsome. Price 2s. 6d.

The next list is of the same class of plants, viz., deciduous, but of a humbler growth, seldom attaining massive proportions, and suitable for small gardens, furnishing the necessary elements of colour, form, and variety. When the first list is not available, for want of space, these trees are necessary to complete the furniture of gardens large enough to admit of both lists being selected from:—

The Snowy Mespilus (*Amelanchier botryaphium*), a beautiful, spring-flowering tree, white, very graceful, of irregular outline. Price 1s. 6d.

The Flowering Almond (*Amygdalus communis*), in several varieties of double and single flowers, is too well known to need further description. Price from 1s. 6d. to 3s. 6d.

The Mountain Ash (*Pyrus aucuparia*), light, feathery appearance, with a profusion of brilliant scarlet berries in the autumn. Thrives best on dry subsoil, and in pure air. Price from 1s.

The Double-flowering Cherry (*Cerasus domestica-flore-pleno*), a showy plant, with white flowers in profusion in spring; of slow growth. Price 1s. 6d.

The Judas-tree (*Cercis siliquastrum*), bright rosy flowers in spring; irregular habit of growth. Price about 2s. 6d.

The Thorn, or May-tree (*Crataegus*), in many varieties, with flowers of white and all shades of red, single and double, many of them bearing brilliant berries in the autumn and winter. Two of the most distinct varieties are the "Glastonbury" and the "Cockspur," but all are good. Price from 1s. 6d. to 3s. 6d.

The Common Laburnum (*Cytisus laburnum*), a well-known tree, which no garden should be without. There are many varieties, but none to surpass in grace and showiness the old common species. Price 1s. 6d.

Magnolia purpurea, a large-leaved, loose-habited plant, not very showy in its general appearance, but always worth having for its purple, tulip-shaped flowers, which are borne freely in early summer. It requires a light free soil and pure air. Price 3s.

The Mop-headed Acacia (*Robinia inermis*), a very handsome, symmetrical tree, the head forming, with a little annual attention, a perfect globe. Price from 3s. 6d. to 10s. 6d.

The Common Sumach (*Rhus typhina*), inclined to be somewhat ungainly in growth, but valuable for the colour of the foliage in autumn, which then changes to a brilliant red, and lasts in that condition some time; the colour is most pronounced when grown on a dry soil. Price about 2s. 6d.

The Ginkgo-tree, or Maidenhair-tree (*Satisburia adiantifolia*), a very handsome, symmetrical plant, of slow growth, the foliage of a pretty green, resembling in shape the pinnæ on the fronds of the maidenhair fern, but very much larger. Price from 2s. 6d.

The following is a selection of deciduous shrubs or plants that grow in the form of a bush, and may be kept in good shape by the judicious use of the knife. Those that flower in the spring should be cut, if necessary, as soon as they have done flowering, before they make the summer growth, on which the bloom of the following spring will be borne. The practice, (frequently pursued) of pruning these shrubs in the autumn and winter, simply deprives the owner of so much of the bloom of the following season:

Weigela rosea, a very free-flowering shrub, the flowers resembling apple blossom. Price 1s. 6d.

The Guelder Rose (*Viburnum opulus*), very showy, the trusses of flowers having the appearance of snowballs. Price from 6d.

The Tamarisk (*Tamarix Gallica*), a common British seaside plant, but very handsome with its feathery glaucous-green foliage, its flowers resembling a plume of feathers. Price 1s.

The Common Lilac (*Syringa vulgaris*). The purple, white, and Persian varieties are all well known and indispensable. Price from 6d.

The Flowering Currant (*Ribes sanguineum*), a very showy spring-flowering plant, bright red flowers. Price 1s.

Pyrus Japonica and *P. spectabilis*—the first with flowers of a brilliant crimson scarlet, and the other a delicate peach-blossom colour—in mild winters will begin to flower soon after Christmas, reaching the highest stage of beauty in March and April. Price 1s. 6d.

Leycesteria Formosa, a very curious shrub, its long racemes of white flowers, with accompanying purple calyces, presenting a very interesting appearance. Price from 9d.

Hibiscus Syriacus, a very showy shrub, with an abundance of flowers, resembling in shape a single hollyhock, and of various colours, which are better developed by plenty of water at blooming time, if dry weather prevails. Price 1s. 6d.

Forsythia viridissima, a very showy, nude-flowering shrub, yellow in the early spring. Price 1s.

Dentaria gracilis, a low-growing shrub, white flowers, very freely produced in early summer. Price 1s.

Daphne genkwa, an upright-growing shrub, produ-

cing an abundance of purple flowers on the nude stems in spring. Price 9d.

The Spanish Broom (*Spartium junceum*), yellow, and the White Portugal Broom (*Spartium multiflorum*), are both very showy, and do best in a nice light, loamy soil, with a dry bottom. Price, from 6d.

The Barberry (*Berberis vulgaris*), a very pretty shrub, with yellow flowers in early summer, and bright scarlet berries in autumn. The berries make a nice preserve. Price 1s.

It will be seen that there are but few of these trees and shrubs that require any special treatment. Many others might be named, but these are of the best for beauty, variety, and easy culture, under almost any circumstances; and for amateurs and others who have not the advantage of regular professional assistance, and have but little time to bestow on their gardens, they are a class of plants that will in a considerable measure take care of themselves after they are once planted, and require no special preparation in planting.

The best time for planting all these trees and shrubs is from the beginning of October to about the middle of November. It is not necessary that the whole of the leaves should have fallen before planting. They may be planted as late as the middle of December if the weather is tolerably mild, and circumstances will not admit of the operation being performed before, but when planted early, the warmth of the earth, and their then condition of growth, enable them to make new roots at once. They will want less attention in the matter of watering the following summer, and will make a full seasonable growth unchecked.

The ground should, if possible, be well drained, naturally or artificially, and deeply trenched, a month before planting, and again dug over once or twice, to get it well aerated. In digging the holes at planting time, let them be large enough to admit of the full spread of the roots. Place nice crumbly soil in immediate contact with the roots, water moderately if the soil is dry, but never plant if the ground is in a wet, pasty condition. Better wait a few days. Stake and tie all the plants that require it at once; and if the following winter is likely to be severe, mulch the surface of the ground above the roots and a little distance beyond, with four or five inches of half-rotted manure.

In purchasing, give the preference to young, vigorous plants, that carry in their appearance evidence of a free, healthy growth. They will overtake in point of time and size, larger plants that have made but slow or stunted growth, and will be cheaper both to buy and to plant, for large plants require a greater expenditure of time and labour to ensure success.

HOUSEHOLD LAW.—XXIII.

LOCAL BOARDS OF HEALTH (*continued from p. 84*).

THE chief objects for which local boards are formed are, undoubtedly, the management of the streets and highways within their jurisdiction, and the removal of nuisances therefrom, and consequent prevention of diseases. With regard to the first of these, the Public Health Act, 1848, enacts that all present and future streets being, or which at any time become, highways within any district, and the pavements, stones, and other materials thereof, and all buildings, implements, and other things provided for the purposes thereof by any surveyor of highways, or by any person serving the office of surveyor of highways, shall vest in, and be under the management and control of, the local board of health; which shall from time to time cause all such streets to be levelled, paved, flagged, channelled, altered, and repaired as and when occasion may require. The board may also cause the soil of any

such street to be raised, lowered, or altered as it may think fit, and place and keep in repair fences and posts for the safety of foot passengers. And if anybody chooses to treat the board with contempt, and wilfully displaces, takes up, or injures the pavements, stones, materials, fences, or posts of any street over which the board has jurisdiction, the offender is liable to a fine of £5, and a further penalty of five shillings for every square foot of pavement, stones, or other materials which he has displaced or injured.

Now, the question which arises here is, *What is a highway?* The point has been satisfactorily settled by the Public Health Amendment Act of 1858, which decided that the term "highway" meant any highway repaired by the inhabitants at large; and though the term "street" would seem of itself easy enough of comprehension, yet the Government took the trouble to insert in the interpretation clause of the Public Health Act a definition of the word, which, therefore, the reader will be pleased to know, applies not only to ordinary thoroughfares in towns, but also to any highways (not being turnpikes), roads, public bridges (not being county bridges), lanes, foot-ways, squares, courts, alleys, passages (whether thoroughfares or not), and also to any parts of such highways, roads, bridges, lanes, foot-ways, squares, courts, alleys, and passages, which are within the limits of the jurisdiction of the local board of health.

Besides these roads and ways, there must be of course in every town certain streets which, from some cause or other, are not highways, repairable by the inhabitants at large. This fact has not been overlooked in the Act, for in a succeeding section it states, that in case any pavement or future street, or any part thereof, not being a highway, be not sewered, levelled, flagged, and channelled to the satisfaction of the local board of health, the latter may, by notice in writing to the respective owners or occupiers of the premises fronting, adjoining, or abutting upon such parts thereof as may require to be sewered, levelled, paved, flagged, or channelled, require them to sewer, level, pave, flag, or channel the same within the time specified in the notice so sent. This section, the reader will perceive, refers only to the repairs of streets which actually exist, and does not constitute a power in the board to make new streets, and rate the occupiers and owners of the adjoining premises for paving and flagging them. Nor must the persons really rateable in respect of these streets—private streets they would be more appropriately called—treat this notice with disdain, for if they do not comply with the terms of the Act, the Local Board may, if it think fit, execute the works mentioned in the notice, and the expenses consequent thereon, and incurred by them in so doing, shall be paid by the owners according to the frontage of their respective premises, and in such proportion as shall be settled by the surveyor. If, however, there is any dispute about the *amount* to be paid, an arbitrator must be called in, who will settle the sum to be paid in each case; but should the occupant dispute his liability to pay at all, the sum due must be recovered from him before the justices. Besides these, there is another remedy, by which the board can declare the expenses to be what are termed "private improvement expenses," and as such recover the same from the wrongdoer by rating the premises occupied by him in respect of the expenses so incurred, in addition to all other rates, which rates need not be published in the ordinary way, or in fact at all. The rate must be sufficient to discharge the expenses incurred by the local board, and interest at a rate not exceeding five per cent., and must not be of more than thirty years' continuance.

As it is manifestly to the advantage of the community at large, that as many streets as possible should be under the immediate control of the local board, in order that the repairs may be done thoroughly and efficiently, and not

be left to the tender mercies of individuals, as in the case of private streets, the local board has power to make any private street a public highway in the following manner:—If any street which is not a highway, within the district of the board, be sewered, levelled, paved, flagged, and channelled to the satisfaction of the board, the latter may, by notice in writing put up in any part of the street, declare the same to be a highway, and thereupon the same shall become a highway, and be from time to time repaired by the board out of the highway rates; but should the proprietor of the street, or the person representing or entitled to represent such proprietor, object to this proceeding, he is at liberty to write to the board to that effect, and the consequence of such a proceeding on his part would be, that the street would not become a highway, but would remain *in statu quo*.

Local boards are very particular as to the appearance of the streets within their district, and they forbid any one bringing forward any house or building forming part of any street, or any part thereof, beyond the front wall of the house or building on either side of it, or building any addition thereto beyond the front of such house or building on either side of it, without their previous consent.

In every district adopting either the Public Health Act or Local Government Act, all the doors in every street must be made to open inwards; and if they are not so made the board may cause them to be altered—first sending a notice to the occupier of the offending dwelling, who can then alter them at his own expense—and recover the expenses as damages, in addition to a penalty not exceeding 40s. This, however, does not apply to public buildings, which can be built without any restriction of that sort, although by far the greater part of our theatres and exhibitions are constructed with doors opening inwards.

Entrances to vaults and cellars from the pavement must have proper coverings made and kept in repair by the occupier, in such a manner as the board may direct, otherwise the occupier is liable to a fine of £5. He must also have his waterspouts in proper condition. He is liable to a penalty of 40s. if he allows the water to fall from his roof on the passengers or pavement below.

Houses in streets within the board's district must all be numbered, and the streets named. If the numbers become defaced they must be renewed at the expense of the occupier. The local board has power also to fix such clocks as they consider necessary against any public building, or, with the consent of the occupier, any private dwelling, and may cause the dials to be lighted at night. With regard to lighting the streets, the local board is omnipotent, and has power to levy special rates to assist them in so doing. Moreover, all the property in lamps, lamp-posts, and gas-pipes vests in that body, and it can contract with any company or person, for any period not exceeding three years at any one time, for means of lighting the streets, roads, and other open places, markets, or public buildings within their districts; and they can provide such lamps, lamp-posts, and other materials and apparatus as they may think necessary for lighting such places. The expenses they may thereby incur are to be defrayed out of the general district rates. The local board, however, cannot fix gas-lamps to private houses without the consent of their owners.

So much for the management of streets; let us now turn our attention to the other provision of the local board, viz., that of removing nuisances and creating measures for the preservation of the public health.

Local boards are bound by their Acts to provide for the proper cleansing of the streets within their districts, and the removal of all filth and noxious matter therefrom. To this end they must provide proper and convenient boxes, and other conveniences, for the temporary deposit and collection of dust, ashes, and rubbish, and also fit buildings and places for the deposit of the sewage, soil,

dung, filth, ashes, dust, and so forth collected by them. They can also contract with any person for—

1. The proper cleansing and watering of streets.
 2. The removal of house refuse from premises.
 3. The cleansing of privies, ash-pits, and cesspools.
- The matters collected may be sold, and the proceeds go to the district fund account. No person is allowed to remove any of the said matter without the sanction of the board, nor must he hinder the servants of the board in doing so, under pain of a fine of £5.

It is the duty, moreover, of the local board to see that all drains, water-closets, privies, cesspools, and ash-pits within their district are constructed and kept so as not to be a nuisance, or injurious to health; and the members can enter the premises of any person against whom a complaint has been made, alleging his drain to be in bad repair, and inspect the same; and in case the drains are out of repair, they can compel the occupier of the premises to do the necessary work to them at his own expense. It will be borne in mind that the *occupier*, and not the *owner* of premises is liable for the repair of those drains which go wrong. No house can be erected until a covered drain has been constructed in such a manner as, upon the report of the surveyor, shall appear to be necessary and sufficient.

And if, upon the report of the surveyor, it appears to the local board that any house is without a drain, it must cause a notice to be sent to the occupier of such house, requiring him to construct forthwith proper drainage. The law is more stringent with regard to water-closets, for if a house is erected without one, the owner is liable to a penalty of twenty pounds, besides the expenses consequent upon the immediate erection of one, which it is the province of the board to order and see completed. Earth-closets may, however, with the approval of the local board, be substituted for water-closets, in any house or building.

The board has also jurisdiction over common lodging-houses, and therefore must keep a register of them, and make bye-laws for fixing the number of lodgers who may be received into each house so registered, for promoting cleanliness and ventilation therein, with respect to the inspection thereof, and the conditions and restrictions under which such inspection may be made.

Certain trades also must not be newly-established in any building or place, without the consent of the local board; of such a kind are the trades of blood-boilers, bone-boilers, fellmongers, slaughterers of cattle, horses, or animals of any description, soap-boilers, tallow-melters, and tripe-boilers.

Every fireplace or furnace newly constructed in the district of a local board, in order to be used in the working of steam engines, or in any mill, factory, dye-house, brewery, bakehouse, gasworks, or in any manufactory, although a steam engine be not used therein—must be constructed so as to consume its own smoke. The local board has power to order every existing fireplace or furnace, used for any of these purposes, not constructed as above, to be altered. If any such fireplace or furnace, not so constructed, be used, or be used so negligently as not to consume the smoke arising therefrom, the person offending is liable to a penalty of forty shillings for every day during any part of which, the fireplace or furnace is so used, after one month's notice in writing shall have been given to the owner or occupier of the fireplace or furnace by the local board to remedy or discontinue the use of it.

DISINFECTION BY SULPHUR.—To disinfect clothing it should be lightly sponged or sprinkled with water containing well-mingled milk of sulphur, in the proportion of a teaspoonful to a pint of water, and then ironed with a flat iron, heated to a temperature sufficient to volatilise the sulphur without burning the clothing.

RICE.

THE *Oryza sativa*, the plant from which rice is obtained, is a native of Asia. It is extensively cultivated in Carolina and the East Indies, and is also grown in Spain, Lombardy, and the southern parts of Europe.

The rice plant is a cereal grass, which grows to the height of about a foot and a half, and requires a wet marshy soil for its cultivation, or else spots that are subject to be overflowed by rivers. The stalk of this plant is not unlike that of barley in appearance, but it contains more joints, while its leaves resemble those of the leek. As many as from forty to fifty varieties of this plant have been discovered in different parts of the globe.

The rice plant is of very great importance to the natives of tropical climates, and serves the same purposes to them that wheat and other grains do in colder countries. In many hot climates, such as China and India, rice forms the principal diet of its inhabitants, and it is especially suited for them, owing to its not acting as a stimulant on the system.

The grains of rice when gathered are covered with a husk, which adheres more or less closely to their surface, which requires to be removed before the rice can be used for food, and which should also, if possible, be done without breaking the grains of rice. This is sometimes done on the spot by the natives, but often in this country after they have been imported, for it is found that rice is not only kept cleaner while on board ship through being imported in the husks, but also that the rice keeps better when they have not been removed. This is done in mills of a peculiar construction, by which the husks are removed without breaking the grains of rice, the rice before this is effected being known as "paddy."

Many varieties of rice are met with in the English market. There is the Bengal rice, commonly known as "cargo rice." It is large grained, of a reddish tint, and its husk cannot be readily separated from it. It is much valued by the natives where it is grown. The Patna rice is of a very white colour, the grains being smaller than the Bengal, and they are also longer and more wiry. This kind is more esteemed than the other variety.

The rice imported from Carolina is the most valued in this country, owing to its becoming softer when boiled than the other kinds. It may be distinguished from the Patna rice by its grains being broader and shorter.

When rice is eaten in large quantities it is liable to remain undigested for a considerable time. For this reason it is often necessary to season the rice with warm spices or other condiments, but it is not liable to ferment nor turn sour in the stomach. It is most useful when employed in conjunction with other articles of food. It then forms a light and wholesome diet, owing to the quantity of starchy material it contains, although, as it is destitute of gluten, it does not afford the same amount of nourishment as wheat. The best way of preparing rice for food is to bake it in a dish with milk, either pure or diluted with water.

When rice is cooked in a saucepan with water over the fire, great care should be taken not to allow the contents to boil, but only to simmer. It is also necessary to be careful that only a small quantity of water be employed for boiling the rice, for if too much is used the rice will absorb it and swell too much. When this food is properly cooked it should be perfectly soft, and yet not broken, and as dry as possible.

Rice ground into powder in a mill is useful for puddings and similar articles of food. When boiled with water it also forms an excellent cement for paper. It is particularly fitted for this purpose, as, when dry, the cement is white, and almost transparent. If only a small quantity of water is employed it forms a paste much used in China for making toys and various fancy articles.

DOMESTIC MEDICINE.—LIII.

ST. VITUS'S DANCE, OR CHOREA.

THIS is a disease to which children and young people are subject; it is far from being uncommon or unfamiliar; and though its treatment, and even its nature, are above the range of domestic medicine, some description of the complaint, and of its cause and treatment, will properly find a place here.

The very name of the disease suggests the nature of it: The word *chorea*, by which doctors know it, is derived from the Greek word *χορεία*, a dance. The name St. Vitus's dance was somewhat wrongly applied to this disease by Sydenham, inasmuch as it was strictly applicable to another nervous disease—epidemic in some German villages at the end of the fourteenth century. Individuals suffering from this disease used to go on a pilgrimage to St. Vitus's chapel, at Dresnelhausen, St. Vitus having the reputation of being able to cure them. It is characterised by irregular and jerking movements of the limbs or of the features. There is a peculiar unsteadiness or unreliableness about the muscles affected, and the movements are not only irregular and jerking, but tremulous, and often almost ludicrous. According to the muscles affected, various actions or postures become impossible. When the symptoms are very severe, and the muscles affected are numerous, the patients can neither stand nor walk, and in very bad cases it is sometimes almost impossible to keep them in a bed. Generally, however, the disease is much slighter than this. It interferes with the patient's power to *write* or to *talk*, and the writing power is an interesting criterion of the progress of the case. Usually there is a diminution of *sensibility* in the affected parts, so that occasionally patients may be pinched or pricked with very little pain. The sight is often impaired. Though the jerking movements described are the most characteristic symptoms, there are generally others. A child rarely takes St. Vitus's dance suddenly; before it appears, there is evidently some impairment of the general health. The temper changes, and not for the better. The child becomes irritable and does not sleep so well as usual; perhaps grows timid and fearful. The intellectual faculties lose some of their brightness, and the child is incapable of much attention. There is a sense of poorliness, a loss of appetite, headache, pains in the limbs; the digestive apparatus is out of order (the appetite being defective) and the bowels constipated. Then appear the jerking and the irregular movements. Sometimes the face gets distorted first, but more frequently the arms. Generally the movements are confined to one side at first—sometimes they remain so; but if the case is severe, they become general. In nearly all cases one side is more affected than the other. There is something very painful in the restlessness of a child with this disease; even when asleep the movements may continue, and sleep itself often keeps away. The muscles of speech are generally affected, and give rise to a very stammering and indistinct kind of language. All these peculiar movements and features are worse when attention is directed to the shy and timid patient. The disease generally ends in the restoration of health, which may, in most instances, be hastened by proper medical treatment.

Much has been done of late years by doctors in showing the relationships of this curious complaint; the details would not be interesting or intelligible to our readers. But we may say that there appears to be an important relationship between this complaint and rheumatic fever, so that persons having it are, more than others, liable to rheumatic attacks, and the inconveniences which are associated with them. This is a reason for taking additional care of choreic children, avoiding the exposure of them to cold and wet, and the influences that would tend to bring on rheumatic fever.

Moreover, in choreic subjects there is a certain delicacy or sensitiveness of constitution, which makes tender care of them an additional duty.

Causes.—The causes of this disease are various; we will only dwell on the principal of them. First, it occurs for the most part in childhood, or to speak more accurately, between six and sixteen years of age. Occasionally, but very rarely, it is met with after this age, up to twenty-five. Amongst the predisposing causes are a rheumatic or delicate constitution, as we have explained in the last paragraph. Then there is something hereditary in the nervous qualities which lead a child to have St. Vitus's dance. It will be found that there are other indications in the family of a peculiar or sensitive nervous system. Some have thought that they have seen a connection between the sudden or quick suppression of eruptions on the skin and the occurrence of this disease; this is doubtful. Worms, too, may occasionally serve to irritate a child into this state, but this is doubtful; they are more apt to cause a single convulsion. All these may be called predisposing causes:—Age, a constitution somewhat liable to rheumatic states, a certain hereditary excitability of the nervous system. Amongst the immediate or exciting causes, one of the most common is *fright*. The writer has had under his charge a case in which the disease was brought on immediately after a fright at school. A man was brought to entertain the school children, by performing tricks and making queer faces. This last part of the performance so frightened the little patient that an attack of St. Vitus's dance followed immediately. Prolonged or intense emotion of any kind will be apt to produce a similar effect.

Treatment.—It will not be expected that we should go into much detail concerning the medical treatment proper to such a complaint as this. There are several medicines which seem to exert a most beneficial influence over the patients suffering from the disease, and to restore the steadiness of the muscles and the serenity of the nervous system. But they are for the most part potent medicines, that require to be administered by a skilled hand. We may give one or two hints that may guide the domestic treatment of children affected with this complaint. First, let us give the negative advice to abstain from purging and lowering such children; their appetite may be diminished, and their digestion disordered. But to attack this state of things with purgatives might only be to lower the child seriously. It should always be remembered a choreic patient is not strong in constitution, and that the constant restlessness and movements tend greatly to exhaust and tire, so that it is necessary to uphold the powers of the body. It is in consequence of this fact that physicians often find cod-liver oil and steel wine to be most valuable elements in the medical treatment. Nourishing food should be freely administered, such as milk. Children generally get very much thinner in a short time under this complaint. The moral treatment is of immense consequence. A child should not be watched curiously, but only in a kindly way, and it should be spoken to comfortably and encouragingly; above all things, it should not be excited or frightened. This applies to all children, but it is especially applicable to nervous children, or to children with actual symptoms of chorea. It is astonishing to notice how careless people are in this matter. They will startle children in all sorts of ways, as if it were fun for them, when they may actually be bringing on an attack of St. Vitus's dance. Considering the rheumatic element in the constitution, warm flannel and comfortable clothing generally are to be recommended in such cases. When a child who has St. Vitus's dance, or whose brothers and sisters have had it, shows any rheumatic pains or feverishness, good advice ought to be sought. In the majority of cases, health is restored after a time.

TEXTILE FABRICS IN DOMESTIC USE.—V.

LINEN.

It will be remembered that at the commencement of these papers we roughly divided the fibres out of which textile fabrics are manufactured into two classes, namely, those derived from the animal and the vegetable kingdoms. Of the first of these we have already treated, and have now to consider those which are the products of the latter. It would be difficult to determine which of these two great classes is the most useful to man, as, while silk and woollen goods are extremely beautiful, and in many cases very durable, the fabrics woven of flax, cotton, and hemp, are perhaps, if anything, even capable of more extended application than these.

Of all vegetable fibres, flax is undoubtedly the most excellent; capable of being woven into textures of the most exquisite fineness, it is yet strong and exceedingly durable. It will not come into the scope of these papers to describe all the curious processes needful to prepare the flax for weaving purposes; we may, however, in passing, observe that the flax-plant grows to the height of three or four feet, and that the portion useful for the production of the fabrics is that near the bark of the principal stem of the plant. It is grown in most European countries, but that grown in Holland and Belgium is said to be the best. When fully ripe, the plants are cut down and dried, when the flaxen fibres are easily taken from the stem. The stems are laid in water until the softer portions are rotten, when, after being dried, the fibres are extracted from the waste portions of the stalks by various processes known as "skutching" and "hackling." These operations being performed, the flax is ready for spinning into thread, preparatory to weaving.

With this very brief sketch of these preliminary processes, we may pass at once to the consideration of the various fabrics woven from these fibres. Linen manufactures are known in commerce by various names, which are regulated according to their fineness, patterns, and other particulars. Some of these are bleached, such for instance as damask and cambric, while others are left partially at least of the natural colour of the flax. In all cases the strength and fineness of the material depend upon the quality of the yarn from which they are manufactured, and the closeness and evenness of the weaving process. There are almost numberless varieties of linen fabrics; from the coarsest canvas and bed-ticking, to the finest cambric—and some of the finer qualities are not only of exquisitely delicate texture, but are very expensive. Of the plain fabrics, those known as Irish and English linens, and holland, which latter is mostly brought from the Low Countries, are familiar and characteristic examples. These are so frequently in use in the household, and are so well understood, that we need only mention them. The plain linen is mostly used for bedding and wearing apparel, and the various kinds of holland are chiefly in demand for window blinds. This application of linen cannot, however, be recommended on the score of economy—as the constant exposure to sunlight and air causes speedy destruction, and in the end Venetian or wooden blinds will be found to be far cheaper. In selecting a plain linen fabric, the principal guide to quality is in the fineness of the texture. This must not, however, be confounded with smoothness of surface, as, while a really good and excellent fabric may be left rough and unfinished, one which is comparatively worthless and altogether inferior may be made, by means of various processes, such as starching, smoothing, and calendaring, to appear of very superior quality. The real test is the closeness of the weaving, and fineness of the threads—the absence of the dressing is a positive advantage. The cloth should be doubled and smartly rubbed together, when any dressing of starch or other material used to disguise the real

quality, will be removed, and the true state of the fabric may then be readily determined.

Among the most familiar and useful of the linen manufactures, are the two fabrics known as linen-damask and diaper. The first-named of these is chiefly used for tablecloths; it is usually twilled and figured, and is often of considerable beauty of design, and intricacy of pattern. This pattern is introduced in the weaving process, and is consequently as stable as the cloth itself. A really good damask is exceedingly durable if properly treated; but of course, considerable care is needed both in actual use and in washing. Much of the beauty of a tablecloth, such as that we are describing, depends upon its perfect whiteness, and freedom from spots and stains, which quality cannot be expected to continue except with careful use. One accident to which white cloths of this description are liable, is the spilling of the juice of fruit upon them at table. This should be seen and attended to at once upon the removal of the cloth—if possible before the stain is dry. The entire cloth should be placed in cold water for some time, and well soaked previous to final washing in the usual manner. If allowed to dry, and then placed in hot water at once, the stain will probably become so fixed as to defy all the laundress's efforts to remove it.

Diaper, chiefly in use for towels, and in the nursery, is a similar fabric to damask, except that the figure or woven pattern is much smaller. It requires the same treatment, and with care is quite as serviceable. Both of these textures are somewhat expensive at the first outlay, but they are very lasting, and consequently it will be well at the outset to procure those of good quality, both for the sake of appearance and for really permanent service.

The finest fabric which can be produced from flax is that known as cambric, which is mostly used for the finer sorts of handkerchiefs and neckcloths. Cambric is a very soft, beautiful, and durable fabric, which may be selected in the same manner, and by the same rules as any ordinary plain linen texture. It should be of exceeding softness and fineness of weaving, and, of course, should only be applied to such purposes as suit its delicate construction.

Lawn is an intermediate texture between cambric and ordinary plain linen, and may be selected and treated precisely as the before-mentioned fabrics. Into this brief outline of the linen manufactures in household use, we have not thought it necessary to introduce any of the coarser or more uncommon fabrics. There are, as we have before remarked, almost numberless processes of manufacturing linen yarn into cloth; and, of course, to each product a particular designation is given, such as drill, huckaback, and many others. As, however, these are all simply linen, the observations already offered will be a sufficient guide both as to purchase and treatment.

Next in quality, and, perhaps, of even more importance, general utility, and extensive application than linen, stands cotton. The number of purposes to which fabrics of this material are applied, are almost beyond computation even now, and are extending every day. As a branch of manufacture, that of which we are treating is, in England, well nigh as extensive as that of iron, and whole tracts of country are so nearly entirely occupied in the process that they take the name of cotton districts. Furnishing as it does material of various degrees of fineness and strength, capable of being dyed into brilliant colours after weaving, suitable for spinning into sewing and various kinds of threads, and applicable to almost every purpose in the household, cotton cannot but be considered as the foremost and most important of textile fabrics in household use. Thus, as a fabric of daily—we might almost write hourly—use, it is necessary in these papers to fully consider

it, and to offer such suggestions as may lead to its proper treatment when in actual work, and this it is our purpose to do in our next paper on this subject.

MUSTARD.

TABLE mustard, when pure, consists of the seeds of the mustard plant ground into a very fine powder, and carefully sifted. There are two plants which yield the seeds employed for this purpose. They are both of the natural order of the *Crucifera*—namely, the *Sinapis nigra*, which produces the black mustard seed, and *Sinapis alba*, which yields the white.

When mustard seed is examined under the microscope, it is found to consist of cells containing colouring matter, globules of a fixed oil, and also a few starch granules. The irritating and vesicating properties of mustard, when mixed with water, are due to the action of an essential oil, which does not exist naturally in the seeds, but is formed by the action of the water on two principles they contain, named myrocene and myronic acid.

These principles are contained only in the seeds of the black mustard, and it is for that reason that they are so much more powerful than those of the other variety, which do not yield any essential oil on the addition of water. White mustard seed owes its hot and pungent taste to the presence of an acrid principle which exists in them ready formed.

The myrocene contained in black mustard seed possesses the peculiar property of being coagulated by the heat of boiling water. For this cause, mustard should never be prepared for the table by the addition of hot water, since the heat, by coagulating the myrocene and hindering the formation of the essential oil, injures the properties for which it is required.

Mustard seed contains a large quantity of fixed oil, which is found chiefly in the outer covering or husks of the seeds. The oil is often employed to mix with rape and other oils to adulterate them. The husks left after sifting the ground mustard seeds are sometimes employed to adulterate powdered pepper.

White mustard seed is often planted with cress, to form salad. When laid on wet flannel in a warm place by the fire, the seeds soon germinate, by which means salad may be obtained in a few days, even in the coldest winter.

Ground table mustard is rarely to be met with in a pure state, but is generally adulterated with flour and powdered turmeric. The presence of the turmeric may be detected by moistening the mustard with a little weak solution of potash, which will instantly turn it brown. The adulterations present in mustard are easily detected by examining the powder through a powerful microscope. But in cases where no microscope is at hand, perhaps the best way will be to powder some mustard seeds, moisten them with a little water, and compare the preparation with the same quantity of the suspected article, treated in a similar manner. The best mustard is often called Durham mustard—although it does not come from that locality—owing to the reputation that article once possessed. This was due to a person residing there having first introduced the plan of grinding and sifting the seeds like corn, instead of merely powdering them in a mortar, which was the method originally adopted.

Numerous forms have been introduced for the preparation of table mustard ready mixed for use. The patent mustard, which at one time enjoyed considerable reputation, was composed of powdered mustard seed, wheat-flour, bay salt, and cayenne pepper, mixed into a paste.

The directions given by M. Soyer, the celebrated cook, for the preparation of a ready-mixed mustard, consisted in soaking the mustard in twice its bulk of weak wood vinegar for about a week, and then grinding the seeds

into paste. The mustard is then to be placed in small jars, and a red-hot poker introduced into each jar. This is directed to be done under the idea that the heat will render the mustard milder in its action.

Another form for preparing ready-mixed mustard is that known as "Linamand's." It consists of parsley, celery, tarragon, and chervil, half an ounce of each, and six salted anchovies cut up small, rubbed well together with one pound of the best powdered mustard seed. The powder is then to be mixed into a paste with sufficient water in which half an ounce of salt and some sugar have been previously dissolved. The mustard is to be made into the consistence of a thin paste, and put into small jars. Then a red-hot poker is to be introduced into each jar, as directed for the previous receipt, and when withdrawn, a little strong vinegar is to be poured over the top of the mustard. This composition is said not only to keep well, but to improve the longer it is kept.

ODDS AND ENDS.

Remedy for Chilblains.—Sulphurous acid three parts, and glycerine one part, diluted with the same quantity of water. This fluid is particularly useful for allaying the intense itching with which chilblains are usually accompanied. The liquid is to be applied to the affected parts by means of a soft camel-hair pencil.

Compositions for Polishing Furniture.—A very good and cheap preparation for this purpose may be prepared by melting one ounce of beeswax, and then mixing into it, while hot, the same quantity of oil of turpentine. When these articles are thoroughly united, gradually pour into the mixture three ounces of liquor potassæ, and stir it continually until the composition becomes cold. A similar composition consists of two ounces of yellow wax, two drachms of white wax, and the same quantity of Castile soap. These materials are to be cut into thin slices, and put in a jar with a gill of boiling water, and placed near the fire until dissolved. When these materials have been converted into a soft paste, pour in gradually the same quantity of oil of turpentine as of the water employed, and stir continually until it forms a uniform mass. Another composition of the same description is prepared by placing in a wide-mouthed bottle, two drachms of powdered shellac, the same quantity of white wax, and two ounces of yellow beeswax with eight ounces of oil of turpentine. The solid materials should be cut into thin strips previously to putting them into the bottle, and the vessel must be kept in a warm place until they are dissolved. Then dissolve two drachms of Castile soap in a little boiling water, and mix with the other ingredients.

Cotton Tassel for Upholstery.—This is made with knitting-cotton, and is most suited for furniture. Wind the cotton several times round your finger. Slip it off. Tie it through the loop with cotton. Cut the other ends of the loop. Make two others over the fingers, and tie to the same cotton each an inch and a half apart. The first is to be the extreme point of the tassel. Tie the cotton to the border an inch and a half above the last tuft. In a vandyked netted border, these tassels look very well. If tied two and two together, they are richer in appearance. Straight fringes of either tassels attached to a white washing braid are very pretty.

A Gallette (French Cake).—Work lightly three-quarters of a pound of fresh butter into one pound of flour; add a large spoonful of salt; make into a paste with the yolks of two eggs; beat into a cup of cream, milk, or water. Roll into a round three-quarters of an inch thick. Brush over it the yolk of an egg and sifted sugar. Bake half-an-hour in a tolerably brisk oven. Ornament and garnish.



THE HOUSEHOLD MECHANIC.—LXVII.

MEAT-SAFES.

IT is a somewhat remarkable fact that in many houses, even including those for which a considerable rent is paid, and which in other particulars are well and conveniently fitted up, no proper provision is made in the way of closets for the preservation of food. Closets there may be in abundance, often large and commodious, but they are mostly damp if cool, and close and warm if dry. Now it is essential for the proper keeping of meat, poultry, or fish, as well as many other kinds of perishable food, that it should be placed in such a situation as will ensure coolness, a full supply of air, and, frequently, dryness. These conditions are most fully combined in the closets known as meat-safes, and as it frequently happens that these almost essential fittings are left to be supplied by the householder, we propose devoting this paper to a description of the manner in which they may easily be made at a comparatively small outlay.

The simplest kind of safe is that in form somewhat resembling a dish-cover, shown in Fig 1. This is one which may be constructed in half an hour by any one having the least command over the tools he possesses. We should advise that the lower box, A A A, be made square, as shown in the figure, and of course it may be of any required size. The framework should be about three inches deep, and wood of three-quarters of an inch in thickness will do very well. This box may be either nailed or dovetailed together at the angles, but if the household mechanic can manage it, the latter method is to be preferred. The box being now constructed, the cover, or roof, if we may so term it, must be prepared for. It is better to have this well curved, as shown in the figure. In order to support the covering material, and keep it to its proper curve,

certain ribs, shown at B, B, B, must be placed diagonally from corner to corner, as in Fig 2. For this purpose nothing can be better than a stout cane, split longitudinally, and secured firmly to the framework by means of screws, as shown in Fig. 3. The cane must be carefully bored, so as to avoid splitting, and the junction of the two ribs may be secured as shown at C, Fig 1, by carefully screwing a brass ring through both parts, which ring will serve as a handle to lift the safe about as required. This framework being thus prepared, is ready for covering. The covering material may be either coarse muslin or canvas (that used by paperhangers for preparing a boarded surface for painting will answer every purpose), the last-mentioned being by far the strongest and most durable. A piece of cloth of sufficient size should be laid over the ribs, drawn tightly down to the frame or box, and temporarily secured by means of a few fine tinned tacks. Four fillets of wood should now be prepared equal in length to the sides and ends of the box, and nailed or screwed to its upper edge

so as to clasp and secure the canvas all round. The surplus edges of canvas should then be cut off, and the safe will be completed and ready for use.

As will be seen from the foregoing remarks, this form of safe is easily and cheaply made, and it will be found exceedingly useful in all closets where food is kept. Of course it is only suitable for covering dishes, and when in use care must be exercised, as, indeed, it must in all cases, to exclude the objectionable flesh fly, as to enclose and imprison one of these in almost immediate contact with the food to be preserved would be worse than leaving it open to take its chance of attack. It should also be ascertained that the box fits the shelf upon which it is placed, or the fly will certainly find its way through the crevices.

Although we have only mentioned the square form of this kind of safe (because of the ease with which it may be constructed), round or oval ones may be readily made in the same manner. The frame of an old sieve, which has lost its wires, may often be utilised in this way, and it will be found that a few covers prepared in this manner will be of the greatest service in providing a light and suitable protection, which can be readily applied to all kinds of perishable food in use during summer or hot weather. But although these small and portable safes are very convenient for covering dishes containing meat or fish, by far the better plan is to provide a closet, made upon the same principle,

large enough to contain all articles of food which are liable to decay, or to the attack of the fly. These closets need not of necessity be very expensive in construction, and they are so simple that they come well within the reach of the amateur mechanic.

The first thing for consideration is, the selection of a suitable site upon which the safe may be erected, the two most important points being dryness and coolness. It

frequently happens that one at least of these is overlooked, and a situation is selected on account of its coolness, while it is at once damp and insufficiently supplied with air. In such a case as this, food will spoil more rapidly than if kept unprotected in a dry closet, and as it must always be remembered that the fly is constantly watching for incipient decomposition—which, under these conditions, cannot be long delayed—it will readily be seen that to place any kind of perishable food in such a situation will be almost equivalent to inviting attack. Where practicable, the safe should always be placed in the open air, a convenient situation will be against a wall facing the north, and quite out of the reach of the rays of the sun. It should also be so arranged as to allow of the freest circulation of air not only round, but through the whole of the structure. On no account should the bottom of the safe be less than four feet from the surface of the earth, and brick piers are to be preferred to wood as supports. With these preliminary remarks we may at

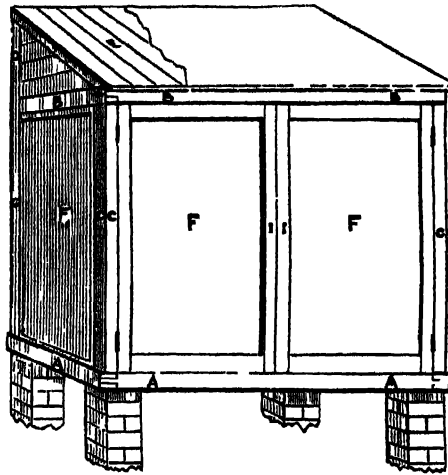


Fig 4

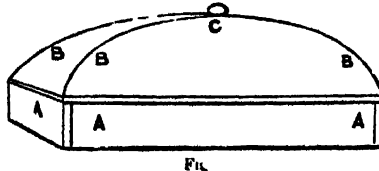


Fig 1

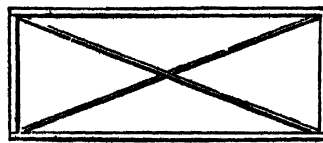


Fig 2



Fig 3

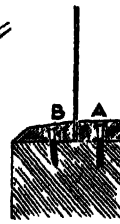


Fig 6



Fig 5

pass to the structural arrangements and mode of construction.

The first proceeding will be to provide a pair of strong frames of wood to form the top and bottom of the structure. These are marked A A A and B B B in Fig. 4, and may be either halved or mortised together as the constructor may prefer. We should advise that the wood for these frames be about two and a half inches square, and it must be planed on all sides to take the paint. Into these frames the uprights forming the corners of the safe must be mortised, as shown at C, C, C, C, and must of course be placed quite perpendicular. It will then be necessary to prepare for a sloping roof, if the safe is to be erected out of doors, in order to provide for the perfect protection of the contents from rain-water. This will best be done by erecting upon the upper frame two short uprights, as shown at D, and upon these a plate may be laid to carry the boards which form the roof. These boards—as also the floor of the safe—should be “matched,” that is, grooved and tongued together as shown in Fig. 5, and they may be purchased ready prepared at a timber-yard. The best plan will be to lay the boards from the back to the front of the safe, as shown at E in the figure. Unless the safe be very large no rafters will be required, as matched lining of three-quarters of an inch in thickness will be amply strong enough to carry the covering. The covering may be either of zinc or felt, the former being the most cleanly and durable, and the latter the cheapest. The boards and zinc, or felt, should be allowed to project at least four inches over each side of the framework of the safe, in order to carry the falling water entirely clear of the sides of the structure. This will complete the framework, which should, if possible, be so constructed as to be entirely free of the brickwork at the back. The whole of the back should be lined with match-boards, and fitted together so as not to leave any orifice through which flies or any other insects may creep. It will be best to put the whole framework and roof together before placing it on the piers, which latter should be allowed to become quite firm before the safe is placed in position. It is scarcely necessary to add that the whole of the wood-work must be planed, and be well painted before exposure to the air and wet.

The next operation will be that of providing for the perforated zinc or wirework, which in a safe occupies the place of panels, that is to say, the spaces marked F, F, in Fig. 4. This may be effected in two ways at the ends of the safe—either a framework may be made to fit into the space, or it may be filled by the zinc or wirework to the whole extent, and secured by means of fillets, as shown in Fig. 6. For all ordinary purposes the latter plan will be perfectly efficient, but it has this disadvantage, that the safe cannot so readily be taken to pieces if required. If this plan is adopted, the inner fillet, A, should be first secured all round the opening; the zinc should then be placed in position and secured by the outer one, B, which, as will be seen by the figure, is bevelled outwards, to throw off the water. If a frame be used independently of that of the safe, it should be of wood of one and a quarter inch in thickness, and tenoned together as before described in these papers. The rabbet required for the zinc may either be formed in the solid wood or made by the addition of fillets, as before mentioned, and as this is by far the simpler method, we should advise its adoption.

If a frame be used, the joint between it and the framework of the safe must be broken by nailing or screwing a fillet of wood completely round the opening. The front of the safe must be provided with doors, which should be tenoned together, as before described. It is advisable to make these strongly, and while wood of the same thickness as that recommended for the end frames will be of ample thickness, the styles and rails should be wider. A

width of three inches for the top rails and styles, and of four inches for the bottom rail, will be quite enough for a safe of ordinary dimensions, and where the entire opening exceeds three feet the doors should be made double, as shown in the figure. They should be hinged at the two ends, and rabbeted together in the centre, and, so convenient is this arrangement for getting at the contents of the closet, that it will be best to adopt it wherever the trouble of constructing two doors is not objected to. A good stout fillet must be nailed or screwed to receive the doors, and care should be taken to make it fit accurately to them, and also to make the doors fit as closely to the framework as possible. For security, one of the doors should be provided with neck-bolts at the top and bottom, and the other with a good strong lock, made to lock into that which is secured by the bolts. The zinc or wire panel should be fixed into the doors as described for the ends.

The material of which the panels are made is at least partially optional. It must, of course, be open in texture, so as to allow of a free current of air; but it may be canvas, perforated zinc, or wirework. Of these, the first is the cheapest—of course the least durable—and cannot be recommended, except for temporary purposes. Perforated zinc, which may be procured at almost any ironmonger's, will answer every purpose, and we should be inclined to advise its adoption in preference to wirework, which is of course much more expensive. One advantage is that the zinc needs no painting, while, except the wirework be galvanised or coated with zinc, it must be painted, or it will speedily rust and decay. The frequent coating with paint closes up the apertures between the wires and materially impedes the free circulation of air through the safe, and thus one of the most important qualities of these closets—that of affording free ventilation—is almost lost in course of time.

It will be observed that in the kind of fixed safe the construction of which we have just described, we have considered that one side was to be placed against a wall. This is not always necessary, although it is most generally adopted, and it is just as easy to construct one having four open sides as one with only three. When the safe is intended to be erected independently of a wall, the back, that is, the part opposite the doors, should be fitted with zinc or wire panels, exactly as the sides and front, and the roof should be edged or sloped from the centre to the sides along the length. Of course the details of construction are the same in both cases, and therefore we need not again describe them. It will in most cases be needful to fit up shelves, and place hooks in convenient situations as may be required, but the arrangement of these must be left to the constructor, only care must always be exercised in placing the former so that the free circulation of air provided for by the perforated sides of the safe is not interfered with.

We think that the instructions here given will be quite sufficient to enable the merest tyro who can use carpenter's tools to construct a safe of any ordinary dimensions. In this paper we have taken as an example a closet of about four feet in length, three in depth, and of the same height. If a smaller one be required, the sizes of the wood used may be diminished in proportion, while one of considerably larger dimensions may be made without adding to them in any material particular. A considerable amount of experience has shown us that the use of such well ventilated closets is highly important from an economical point of view, as much food is frequently spoiled in hot seasons for want of a cool and suitable storing place, and we can therefore safely say that there are but few better or more useful jobs in which the household mechanic can employ his spare time, and more conducive to domestic comfort, than in the construction of at least one commodious meat safe.

GARDENING—XLI.

ORNAMENTAL EVERGREEN TREES AND SHRUBS FOR SMALL GARDENS.

DECIDUOUS trees and shrubs provide the elements of beauty in a garden, by their diversity of colour, both of foliage and flowers, and of form or contour—the chief interest attaching to them when in bloom. But a garden in which the planting consisted wholly of trees and shrubs of this class, however handsome and varied, would present but a naked and somewhat weird appearance when defoliated in winter. Happily, we have among evergreen plants ample materials wherewith to enrich our gardens, so as to give them a pleasing air of comfort and warmth, even in mid-winter, which it would be impossible for them otherwise to possess, and contributing largely, even as a necessity, to its summer aspect; for, independent of the beauty of the flowers of many of them (some being magnificent), the contrast they afford in comparative heaviness of contour and colour when out of bloom render them indispensable. Although the bulk of evergreen plants are, from the density of foliage, and compact habit of growth, somewhat heavy, and a few even sombre, yet there are many among them that have an exceedingly light and graceful appearance, and nearly all the coniferæ, or pine tribe, have a beauty that is entirely their own in the spring; when the young growth is forming, the pale, delicate tints of the young shoots and leaves presenting a vivid contrast to the darker shades of the matured foliage. This pleasing effect remains in many varieties for a considerable length of time. This class of evergreen plants—which has been so abundantly added to and enriched by the enterprising researches of our plant collectors during the last half-century from the discoveries in China, Japan, and the Western World—possesses also a great diversity of size and character. The extremes of contrast in size may be exemplified by the *Wellingtonia gigantea*—a veritable monarch of the forest, that attains in its own country a height of two, and sometimes three hundred feet, and of proportionate size in the girth of trunk, and spread of the branches—and the tiny *Abies pygmaea*, that forms a solid cushion-like bush, and requires years of growth to cover a foot of ground. As a contrast of form and character, may be noted the cedar of Lebanon, the common stone pine, and the yew, which are of massive grandeur and sombre aspect, while the deodar, or *Cedrus deodara*, and the *Cryptomeria japonica*, are examples of lightness and elegance, each of them attaining considerable size in this country.

Among the coniferæ of humbler growth adapted for planting in the foreground, in immediate proximity to the dwelling-house, or as compact specimens for small lawns, croquet grounds, and as prominent objects of relief on terrace gardens and geometrical flower gardens, the golden arbor-vitæ (*Thuja aurea*) and *Picea pinsapo* may be quoted as types of dense-foliaged, slow-growing plants, perfect in beauty of habit and colour, while lighter forms, at once elegant and graceful, may be selected from plants of such character as the weeping juniper (*Juniperus Bedfordiana pendula*), *Retinospora ericoides*, and *R. plumosa*; and if greater variety of small specimens is desired than can be selected from the slow-growing varieties, or those which do not reach a large size, the object may be attained by planting small specimens of larger-growing varieties, with the preconceived intention of removing them as soon as they get too large for their positions, when they may be either planted in other and permanent positions or they may be sold or exchanged for a new selection, to be treated in the same way, and so on as long as may be desirable. If this latter plan be adopted, the taste and desire for greater variety and change may be gratified without incurring any expense after the first outlay; for if the plants are fairly treated their increased value will

cover the cost of transplanting and renewal, and sometimes will be found to leave a margin of profit; but in the practice of this system it must be observed that all plants intended for removal when too large should be carefully lifted and replanted every second year. The object of this is to induce the formation of roots close at home, and of a more fibrous character, so that they may be in good condition for planting when finally removed. If allowed to remain undisturbed for a longer period than this, many of them would strike long woody roots deeply, and spreading widely in the ground, which, although well calculated to support a healthy and vigorous growth, will expose them to considerable risk at the time of removal. This plan of frequent removal is practised at all good nurseries for the purpose of ensuring the safety and well-doing of the plants after being sold; and, again, this system of biennial transplantation will also give the opportunity of a re-arrangement, if it is considered desirable to vary the effect of the planting.

We will now proceed to give the names and a brief description of a few of these plants, selecting those only possessing the most marked characteristics, and which are likely to prove the most generally useful from their habits and constitutional hardness, and mostly of such price as to be within the reach of the possessors of moderate means. It may here be observed that the maximum prices given will be that of such sized plants as it is recommended to purchase, having in view their future safety and well-doing, and that are generally as large as can be removed with the minimum of risk. Of course, those who prefer it may purchase larger plants at an advanced price, but greater care is necessary in the transplanting, and they require more after-attention, which amateurs are not always prepared or able to give. Following in the same order as before, we will give the largest kinds first place:—

Wellingtonia gigantea, previously mentioned, makes a noble lawn specimen, is very hardy, but on heavy, low-lying land the foliage will become browned in very severe winters. The price, from 2s. 6d. to 15s.

Cedrus deodara, an elegant lawn plant, rarely injured by frost; and *Cedrus Libani* (the cedar of Lebanon), of a totally opposite character to the last, being heavy and massive in age, of magnificent proportions, and thoroughly hardy. These two may be purchased, according to size, from 2s. 6d. to £1 1s.

Abies Canadensis requires a dry sub-soil. *Abies Douglasii* and *Abies Mensiesii*, both of which will thrive almost anywhere, where the soil is sufficiently deep. It may be said that none of these larger-growing kinds will attain either large size or robust character on shallow soils resting on chalk, rock, or any impenetrable substratum. The first of these three may be purchased from 2s. 6d. to 5s., and the last two, which are more expensive, from 2s. 6d. up to 10s. 6d.

Cupressus Lawsonii and *C. Lambertiana*, both fine fast-growing species, and very hardy, from 2s. to 10s. 6d.

Picea grandis and *P. Nordmanniana*, the first from 2s. 6d. to 7s. 6d.; the latter, which is one of the grandest of the tribe, from 3s. 6d. to £2 2s.

Pinus excelsa, from 1s. 6d. to 7s. 6d.

Pinus strobus and *P. sylvestris*, from 1s. to 5s.; although somewhat common, are very distinctive.

Biota orientalis (the Chinese Arbor-vitæ), from 1s. 6d. to 3s. 6d.

Thuja gigantea, *Retinospora obtusa*, *Thujopsis borealis*, and *Taxodium sempervirens*, all good, and may be purchased from 2s. 6d. to 10s., but the *Retinospora* will not succeed well on heavy or wet land.

In the second division, or those adapted for foreground planting, a good selection may be made from the following, which are all of distinct character and striking appearance:—

Taxus adpressa (the table topped yew); *Retinospora pisifera*, beautiful, slender habit, likes a dry sub-soil; *Thuja filiformis*; *Taxus fastigiata* (the Irish yew); *Picea nobilis* and *pinsapo*; *Juniperus excelsa*, *Chinensis*, and *glauca*; *Cryptomeria Lobbi* requires a dry and somewhat sheltered position; *Cephalotaxus Fortunei*; *Araucaria imbricata* may be grown anywhere, but does best in light soil on a gravel bottom; *Cupressus nana* and *McNabiana*; *Juniperus stricta*, a beautiful, upright-growing plant, of silvery foliage; *Taxus elegantissima*; *Thuja orientalis elegantissima*; the whole of which may be purchased at prices, according to size, from 2s. to 7s. 6d. Although this selection contains the names of only a few of the ornamental coniferæ, it will be found that nearly all the distinctive characteristics are represented, and will be sufficient to ensure the necessary diversity of form and colour.

Another important class of decorative evergreen plants is that which is commonly designated by the general term "American plants," by which it must not be understood that they are importations from America, for there are in reality but few of them natives of that country. They are all plants requiring peat soil for their successful cultivation, and are all of inferior or shrubby growth, also there are none of them that really thrive in the impure atmosphere of the immediate neighbourhood of large cities. When we say that they require peat soil for their cultivation, it is not intended to convey the impression that they will only grow where nature has provided a peat soil, for there are some light, fibrous, peat-like loams that suit them admirably; but where the soil is not of the character of either of these, it is necessary that there should be an admixture of peat with the staple soil—the heavier and more inclined to clay the soil may be, the more peat will be necessary. In districts where peat may be scarce, or too expensive, these plants may be grown with tolerable success by mixing with the staple about equal parts leaf-mould, and half-rotted grass turf that has been cut thin as if for forming a lawn, and stacked up in a heap for six months. This turf should always be procured from a nice light loamy pasture that has been many years in grass, and preference should be given to turf from a pasture or common in which the common bracken or fern brake grows. If beds are prepared for these plants on heavy land that is inclined to lie wet in the winter, provision must be made for thorough and efficient drainage, for although these plants want abundance of water in the summer, their delicate hair-like roots soon perish in soil that is wet and cold, when they are comparatively at rest.

Although the possession of this class of plants will involve some considerable outlay to those who are not fortunate enough to possess a garden the soil of which is naturally suitable, they are well worth it, for the foliage of nearly all is eminently distinct from other evergreen shrubs, and the principal genus—the rhododendron—possesses among its many varieties, such gorgeous colouring in its blooms as will amply repay for the expenditure; and, blooming as they do in the month of April and the beginning of May, are doubly valuable. The common and cheaper species of rhododendrons—as "ponticum," and "catawbiense"—will thrive in almost any soil, but it must here be observed, that all plants that delight in peat earth have an antipathy to lime, so that it is not advisable to attempt to grow them to any extent on soil in which lime enters largely into the composition.

The best and cheapest way of procuring a collection of rhododendrons for effect, is to order the required number of a nurseryman who grows them largely, leaving the selection to him, naming any colour that it is desirable should preponderate; and the colours range from pure white, through all shades up to intense scarlet, and to the deepest crimson. In this way they may be purchased, according to size and rarity, from 18s. up to £5 per dozen,

As associate plants, and ring the same treatment, although not evergreens, mentioned the American and Ghent azaleas, which possess all shades of glowing colours—white, red, purple, yellow, and brown—and may be purchased in the same way at from 18s. to £1 10s. per dozen.

Another division of this class of plants that may be summarised in the same way, is the Erica or "hardy heath," a low-growing shrub, that forms a pretty edging and finish to beds and groups of the larger kinds, which may be purchased in great variety at from 6s. to 9s. per dozen.

The best and most distinct of other varieties of this class of plants, are *Andromeda floribunda*, a beautiful, free-flowering shrub (white), from 2s. 6d. to 5s. each; *Daphne cneorum*, of dwarf, trailing habit, 1s. each; *Gaultheria procumbens*, of similar habits to the last named; *Kalmia latifolia*, another most beautiful white-flowered shrub, with dark glossy foliage, from 2s. 6d. to 10s.; *Menziesia laurulea*, 1s. each; *Pernettya angustifolia*, 2s. 6d.; *Rhodora canadensis*, and *Polygala chamaebuxus*, both of which may be purchased from 1s. 6d. to 2s. 6d.

In the more general collection of evergreen shrubs, some of which in time assume the proportions of trees, and which are generally so well known as to need little or no description, it will be only necessary to indicate a few of the most marked character, as an aid to those desirous of making a selection. *Euonymus Japonicus*, and its variegated-leaved variety, and *Aucuba Japonica*, or spotted laurel, are the two best evergreen shrubs for town culture, and good anywhere; the common laurel (*Cerasus lauro-cerasus*); the Portugal laurel (*Cerasus Lusitanica*); the box-tree, the best varieties of which are the myrtle-leaved (*Buxus myrtifolia*), and the variegated (*Buxus sempervirens argentea*); the evergreen barberry (*Berberis aquifolia* and *Berberis Darwinii*), a very pretty, dwarf-growing, small-leaved species; the double-blossomed furze (*Ulex Europæa flore-pleno*); the holly, in any of its varieties; the laurustinus (*Viburnum tinus*), one of the most valuable of our common evergreen shrubs, with its sheets of snowy blossom in mid-winter; *Phillyrea latifolia*, *Skimmia Japonica*, a pretty, slow-growing shrub, with bright red berries; the strawberry-tree (*Arbutus unedo*), and its scarlet variety, *A. ruber*, a very beautiful shrub, both in foliage and flower, while the fruit resembles a ripe strawberry; but it requires pure air and a light, free soil, peat being the best. The sweet bay (*Laurus nobilis*) requires a little protection in severe winters. These may be purchased at prices ranging from 1s. to 5s., good useful-sized plants.

It is only necessary to add that the same care should be exercised in the preparation of the soil for their reception as advised for deciduous trees and shrubs; and for the coniferæ it is advisable to put small plants on the top of the ground, instead of sinking them in holes, and cover the roots with little mounds of earth, if there is any likelihood of water lying in the ground in winter; larger plants may have the collar kept well above the surface, but of course the ground must be well broken up underneath. The best season for planting evergreens is from the beginning of September to the middle of October, and the last week in October is the latest date at which they can be planted with safety. If it is not possible to do it by that time, it is better to leave the performance of the work until the middle or latter end of March, according to the weather, avoiding a time of cold, drying winds, if possible; if these prevail, it is better to wait until April. Spring-planted evergreens will want more attention in the matter of watering during the following summer, so plant in early autumn, if possible, as at that date, while the ground is still warm, they start into new root action at once, and get established before winter sets in.

CHEESE AND MAKING.

WE have already, in the HOUSEHOLD GUIDE (pages 306 and 330, vol. iii.), given a general description of the English varieties of cheese. We now add some particulars respecting foreign cheeses, and a few useful receipts.

Dutch Cheeses.—At Brock, near Amsterdam, may be seen these cheeses in various stages of preparation—some in the press, others soaking in water and imbibing salt—and every part of the process distinguished by the most scrupulous cleanliness. A very large quantity of these sweet milk or Edam cheeses are made in North Holland, and exported to the most distant countries of the globe. They keep a long while, and form an important article in the victualling of ships. The Dutch cheeses are made in a very similar manner to the Gloucester cheeses, but the milk is generally curdled by means of muriatic acid or spirit of salt, and great care is taken to prevent fermentation and to extract the whole of the whey. For this purpose the curd is repeatedly broken and pressed; and before it is made up into the round shape in which it is usually sold, the broken curd is well soaked in salt and water. When the cheeses are finally pressed, all the whey which may remain is washed out with the brine; salt is likewise rubbed over the outside, and they are set to dry on shelves in a cool place. A finer cheese is made at Gouda and other places by imitating the process in making Gruyère cheese, but this cheese is always full of small cavities, and will not keep so long as the Edam. The cheese most commonly met with in Holland is a large kind of skim-milk cheese, which is made very much like Cheshire cheese. It grows hard and dry, and has not much flavour. To supply this defect cumin seeds are mixed with the curd, which those who are accustomed to it consider a great improvement. On the whole, it is a better cheese than our Suffolk skim-milk cheese, and forms an important part of the provisions usually stored for a Dutch family.

Gruyère and Parmesan Cheeses only differ in the nature of the milk and in the degree of heat given to the curd in different parts of the process. Gruyère cheese is entirely made from new milk, and Parmesan from skimmed milk. In the first, nothing is added to give the flavour; in the latter, saffron gives colour and flavour. The process in both is exactly similar. Parmesan cheese is made in the country between Cremona and Lodi, the richest part of Lombardy. The milk of at least fifty cows is required for one cheese; and, as one farm rarely affords pasture for such a number, it is usual for the farmers to club together. The best kind of cheese is kept for three or four years before it is taken to market. In Italy, a plateful of grated Parmesan or other cheese is mostly served with soup, when each guest takes what he likes, and mixes it on his own plate.

German Cheese.—A small cheese, much relished by all ranks, is made in the north of Germany, in the simplest manner, with milk from which the cream has been taken off to make butter. This is curdled by being placed near a fire. When it has become somewhat sour, it is put into a linen bag, and all the whey well pressed out; when it is tolerably solid, it is broken by the hand in a tub, and made very fine. It remains in this state until the putrid fermentation begins, which is readily perceived by the odour. It is then taken in small portions, and formed into small flattened balls, which are ranged on a board and set to dry. Caraway seeds are generally mixed with the curd. In a few days the mellowing goes on, and the centre becomes very soft. The cheeses are sometimes placed in the wood smoke of a chimney, where they remain a considerable time; and when they are used, the outer part is peeled off like the rind of an apple. A whole cheese is a mere mouthful.

Schabzieger, the great Swiss cheese, is made in the canton of Glarus. The curd is pressed in boxes, with holes to let the whey run out; and when a considerable quantity has been collected, and putrefaction begins, it is worked into a paste with a large proportion of a certain dried herb reduced to powder. The paste thus produced is pressed into moulds of the shape of a common flower-pot, and the putrefaction being stopped by the aromatic herb, it dries into a solid mass, which keeps unchanged for any length of time. When used, it is rasped or scraped, and the powder mixed with fresh butter is spread upon bread.

Boiled Cheese.—Put a tablespoonful of milk into a saucepan with an ounce of butter, and a quarter of a pound of prime cheese, finely grated. Set the whole over a slow fire, and when it boils add a well-beaten egg; stir all together, turn it into a dish, brown it with a salamander, and serve hot.

Welsh Rarbit.—Cut bread half an inch thick, toast it on both sides very lightly, and cut off the crust; then cut a slice of fat cheese without rind, not quite so large as the toast, upon which lay the cheese in a toaster before a clear fire. Watch it lest it brown or get hard, and when the cheese is thoroughly melted, remove from the fire, and season with mustard, pepper, and salt.

Macaroni with Cheese.—Boil a quarter of a pound of macaroni in three pints of milk and water and one ounce of butter till tender; strain, and put it into a stewpan, with two ounces of butter, a spoonful of flour, and half a pint of cream; season it with pepper and salt, and add a quarter of a pound of Parmesan cheese, grated; mix and boil together, put some grated cheese over it in the dish, and brown with a salamander. Or, boil the macaroni till very soft in brown gravy, then take it out and drain it, grate over it Parmesan cheese, and serve hot. Or, boil the macaroni in milk, broth, or water; drain it, and put it into scallop shells, with pieces of butter and grated Parmesan cheese over it; over the top grate more, and add butter; set the shells in a Dutch oven, before a clear fire, and brown lightly, so as not to harden. Or, the macaroni may be dressed in a cheese-toaster instead of shells.

Ramequins.—Boil together a quarter of a pint of milk and one ounce of butter, adding two spoonfuls of flour, and while quite hot stir in four eggs, beaten smooth, and two ounces of grated Parmesan cheese; bake it in paper cases.

Fondue.—Mix together a quarter of a pound of butter and the same of flour, with a pint and a half of cream; boil it to the consistence of a paste; when cold, stir into it four whole eggs, well beaten, and a quarter of a pound of Parmesan cheese, grated; season with pepper and salt; line a mould with biscuit paste, and bake one hour; or it may be put into paper cases, as ramequins are.

Stewed Cheese.—Good double Gloucester, whilst new, is the best cheese for stewing. Chop the quantity required into small portions, then put them in a basin, and cover them with ale or porter; set the basin on the hob or in the oven of a kitchen-range, and stir it now and then, till well melted and mixed; having toasted slices of bread, pour the stew over the toast and upon a hot plate; add mustard to taste, and a little Cayenne pepper is an excellent addition to this supper dish.

Potted Cheese.—Put into a marble mortar a pound of Cheshire cheese, cut into dice; six ounces of good butter, four teaspoonfuls of loaf-sugar in powder, and half a teaspoonful of pounded mace. Pour over the whole a glass of sherry, and in a few minutes beat all well together. As soon as it is worked into a smooth paste, put it into jars, to be closely covered. If the lid fits well, and the butter employed is sweet, cheese thus potted will keep good a month or more.

Savoury Cheese-cakes.—Beat a pint of curd, well

drained, with three ounces of butter, add four whole eggs, and the yolks of two, well beaten; rub through a sieve, and add a quarter of a pound of Parmesan cheese, well grated; season with salt and pepper. Line small tart-pans, or little deep moulds, with puff-paste, fill them, and bake ten minutes.

Cauliflower with Cheese.—Boil the cauliflower in salt and water, and drain it; soak the largest pieces in white sauce, mixed with grated cheese; dress it upon a dish, cover it with the same sauce, sprinkle the top with cheese, spread on it a layer of butter, and sprinkle it with bread-craspings. Brown with a salamander, or in an oven, and serve very hot. This will be found a very savoury and, at the same time, delicate dish.

To Keep Cheese.—When a whole cheese is cut, and the consumption small, it is generally found to become unpleasantly dry and to lose flavour before it is consumed. This is best prevented by cutting a sufficient quantity for a few days' consumption from the cheese: place the remainder in a cool place, rather damp than dry, spreading a thin film of butter over the cut surface, and covering it with a cloth to keep off the dirt. This removes the objection existing in families against purchasing a whole cheese at a time. The common practice of buying cheese in small quantities should be avoided, as not only a higher price is paid for any given quality, but there is little likelihood of obtaining exactly the same flavour twice running. Should cheese become too dry to be agreeable, it may be used for stewing, or when grated cheese is wanted.

THE HORSE.—XVII.

(Continued from p. 132.)

WE so far advanced the subject of illness in page 346, vol. iii., as to finish those cases in which we consider it safe or advisable for an amateur to interfere. We now purpose to notice a few of the accidents to which the horse is liable, and which the horsekeeper or his man should be able to dress and attend to, if medical assistance is not at hand. First and foremost of these, as most men know to their cost, stand broken knees. Sooner or later, a large percentage of horses, from some cause or the other, come to bear, what is sneeringly called, the "Devonshire coat of arms;" and when once it is acquired the unhappy owner must either make up his mind to wear out the horse himself, or, no matter how good he may be, sell him at a very reduced price. Horses often are really none the worse for a scar on the knee, if the joint has not been cut, so as to let out the joint-oil; but people, unless they know the cause of the scar, are generally very shy of purchasing one so marked, not believing in the saying "that a horse who has once fallen will like the process so little that he will be sure to stand up for the future." The best, however, will come down at times, and we have seen a valuable hunter roll head over heels, when trotting along smooth turf, from no apparent cause. As it happened, he was none the worse, but had it occurred on the road he must have been blemished for life. We have known a little horse with a scarred knee to be ridden long distances to meet the hounds, and still longer ones home after hunting, often in the dark, yet a safer horse was never crossed, and he has brought his rider along rough country roads without a stumble. We once knew a hunter, valued at some hundreds, who reared up and got away from his groom as he was mounting him for exercise; he dashed down a steep bank into a road, and broke both his knees. At the time ten pounds would have bought him, and to any poor man who wanted a good horse, and did not regard appearance, he would have been cheap indeed, and, well ridden, very likely have made something approaching his original price in time. The

celebrated Charles Apperley, who wrote under the name of "Nimrod," once sold a horse to a nobleman for a large sum. When about to receive the money, he remarked, "Oh, I forgot to tell you that my horse has a broken knee." "It is of no consequence," said the purchaser, "as it does not interfere with his action," and paid him at once. We mention these circumstances to show that broken knees are not always attended with such untoward results as many imagine, and that it is well worth taking some pains with their cure. Of course, this depends on the amount of injury done; and in many cases it would be merciful to shoot the poor creature at once, while in others he need not lose a day's work. These are extreme cases, yet both come under the head of broken knees. We are happy to say that, although we have had many horses with scarred knees in our stable, our experience in treating such cases has been most limited, possibly from always having selected our stud with good shoulders and action, and making them depend on themselves, and go light in hand, instead of boring on the bit for support. Such knowledge as we possess, however, our readers shall have the benefit of, supplemented by a mode of treatment derived from a most reliable source. At the same time, we heartily wish that they, like ourselves, may seldom or never have occasion to put it in practice. We will just take a slight case, say one in which the hair is taken off and the skin grazed. Here fomentations with hot water night and morning are needed, and, should the place swell, a little tincture of arnica in water may be applied, about a drachm of arnica to a pint of water being the right proportion. As the horse must rest a few days, a dose of physic will do him good, and at the same time help to carry off any inflammation. If wanted, he may go to work again as soon as the swelling has subsided; but if he can be spared for a time, and you wish to have as little blemish as possible, a blister over the front of the knee will do good, and, bringing all the hair off, cause it to grow again of the same colour all over, which is often not the case unless it is applied.

The same treatment will answer even where the skin has been considerably cut, provided proud flesh is kept down by a touch of blue-stone, but as considerable tact and discrimination are required to know where to use it and where not, and as we write for inexperienced horsekeepers, we should advise them to call in a medical man under such circumstances, at least until they have themselves seen similar cases treated. Where the bone is at all injured, of course it will be wise to do so at once; and as a novice may not know with certainty when such is the case, it is the safest resort in all deep cuts.

What is technically termed cutting is the striking of one leg against the other, either in front or behind; this, if not quickly remedied, causes a sore place. When such is the case, a proper boot must be used at once, or the horse thrown up until he has acquired more strength, either from age or better keep; as where the horse is well made, and does not turn his feet out, cutting generally proceeds from weakness caused by youth or bad keep. Shoeing will at times remedy it; and if you are in a country district, with only a village Vulcan at hand, it will be better to take the horse to some man who really knows his trade, even should it entail a journey of some few miles, whenever he is shod. If the horse knocks his legs about when of an age for work, and in good condition, sell him as soon as you can. We know a man who has a very good-looking young horse of this description, for which he was several times offered a really high price. We advised him to sell, as the horse would never be of any use, as, from his action and the formation of his joints, we felt sure he could not go without striking. His owner, however, decided to keep him, although during slow work in the summer the legs filled considerably. The con-

sequence was, that when the hunting season came on he found his horse no use, and, if not actually lame, he was so near it that he has been up to this time in a loose-box, without doing a day's work for months. "Speedy cutting" is striking one leg with the other just under the knee; it is done in the gallop, and is so dangerous that we shall suggest no remedy, and strongly advise our readers to have nothing to do with a horse addicted to it, as some day he will come down headlong with them should they do so. It will be known by a scar or roughness just under the knee. For slow work it is of no consequence, and a horse may perchance, by a timely notice of the defect, be bought cheap, and do such work for years; but never attempt to gallop or hunt him. Boots are made to guard against it, and in a measure do so; but a horse must be unusually good to induce us to ride him, even with such safeguards, that is, as a pleasure horse; of course, for a special purpose, such as steeplechasing, racing, or anything of that sort, they would be at once resorted to. "Overreach" is the striking of the hind shoe into the fore foot, and often causes bad wounds. It should be healed as soon as possible, or, if the horn becomes affected, it may prove serious. Gunpowder was at one time a favourite remedy, but perhaps arnica brushed in is as good as anything, or blue-stone will do—anything, in fact, to dry up the wound, and cause a scab—of course, the place should be carefully washed first, and the horse confined to his box until it has healed. If much bruised and torn, it is best to call in a medical man. Pricks in shoeing often cause lameness, but they are of a nature that the amateur can scarcely treat himself; and if removing the shoe, and putting the foot in a cold bran poultice for a day or two, does not give relief, aid must be called in. "Quitter" and corns, also, had better be treated professionally, as they are beyond the scope of instructions we could give in an article of this sort.

The same may be said of all strains of the sinews, such as breaking down, and like accidents. The only thing left for us to consider under our present heading will be thorns, which are often very troublesome amongst hunters. It should be the groom's care to scrupulously search for these after hunting, which he can best do by well wetting the legs; the hand then passed over them will at once detect any strange substance, and they can generally be easily removed. Sometimes, however, he will require to open the skin slightly with a knife, and we have known poultices necessary. When such is the case, currants form as good and strong a poultice as anything, and we once used them successfully for this purpose. Should the horse not be very lame, or the parts much inflamed, it is as well to work as rest him, as the exercise will often move the thorn. We once knew a steeplechaser which suddenly went lame in the stable, refused his corn, could not lay down, and seemed to be gradually wasting away. He was first treated as for a strain, but all to no purpose. At length he was thrown, an incision made, and a stout black thorn found completely imbedded in the muscles of the thigh. The surgeon employed attempted to get it out, but failed, and the horse was afterwards destroyed. This is an extreme case of injury from thorns. On the other hand, we knew an old hunter killed whose thighs, when he was skinned, were found to contain numerous thorns.

ODDS AND ENDS.

Vinegar as an Aid to Digestion.—Vinegar, when taken with food in moderate quantities, assists digestion. It is especially useful when taken with raw vegetable food, such as salads and similar articles of diet. It is also of great use in aiding the digestion of those kinds of food, such as salmon, which contain large quantities of rich and oily principles.

The Date.—The date is the fruit of the *Phoenix dactylifera*, a date-tree. When ripe, the date has a pleasant taste, not unlike the fig, but if gathered too early the flavour is apt to be astringent. The Arabs prepare a kind of meal from this fruit, by hardening it in the sun. The young leaves of the date-tree are also eaten with lemon-juice as a salad. When the date-tree is perforated, a kind of white sap, known as "date-milk," is obtained. This liquid possesses a very agreeable, sweet taste, and is given to sick persons. The hard stones found inside the dates, are employed by the Arabs as food for cattle, after they have been crushed and softened in water. Ropes and sails are also made by the Arabs from the filaments which arise from the stumps of the branches. They also weave mats and similar articles from the old leaves. The wood of the date-tree is very durable, and is employed for beams of houses, and similar purposes. The date-tree often grows to a hundred feet in height, and is very profitable to the natives of the countries where it grows, as it requires no attention, and will thrive as well on sandy as on cultivated soils. Dates are nourishing, though rather hard of digestion, but when eaten in excess, are liable to cause headaches and affections of the skin.

Anchovy Salad.—Wash the anchovies in water, remove the bones and the insides, and also the heads, fins, and tails. Put them on a dish, with some young onions, parsley, lettuces cut small, and a sliced lemon. Pour over them the juice of the lemon, mixed with salad oil, and send to table.

Alaberry.—Boil some ale, put in some slices of bread, and a blade of mace. Then boil, sweeten with loaf-sugar, and strain it.

Wash Ball.—Take four ounces of sweet flag, the same quantity of lavender flowers, six ounces of orris-root, and two ounces of rose-leaves. Powder them in a mortar, and mix with them one pound of hard soap, scraped fine. When well mixed, bring into a proper consistence with a little water, and roll it into balls.

Grapes.—The leaves of vine, when carefully dried in the shade, are said to make an excellent substitute for tea. The leaves and prunings from the vine, also, when fermented, produce vinegar of superior quality. The expressed juice of unripe grapes is known as verjuice, and was formerly a popular remedy for bruises, and similar complaints. When the wood of the vine is converted into charcoal, it forms a pigment used by artists, and is also employed as a crayon for drawing outlines. Reduced to a fine powder, it forms an excellent dentifrice for cleansing the teeth. The sap from the vine was formerly employed as a remedy for weak eyes: and its tendrils have been used as a pickle. The blossoms of the vine, on account of the agreeable odour they possess, were formerly placed in wine to perfume it. It has been recommended to paint the walls black, against which grape-vines have been planted, as it has been found that when that is done, the vines yield a much larger supply of grapes. This is due to the readiness with which black surfaces absorb the heat, while the sun shines on them, and thus increase the temperature of the vine.

To Preserve Bread for Long Periods.—Cut the bread into thick slices, and bake it in an oven, so as to render it perfectly dry. In this condition it will keep good for any length of time required, and without turning mouldy or sour, like ordinary bread. The bread thus prepared must, however, be carefully preserved from pressure, otherwise, owing to its brittleness, it will soon fall to pieces. When required for use, it will only be necessary to dip the bread for an instant into warm water, and then hold it before the fire till dry, and then butter it when it will taste like toast. This is a useful way of preserving bread for sea voyages, and also any bread that may be too stale to be eaten in the usual way.

HOUSEHOLD AMUSEMENTS.—XXXVII.

MODEL SHIP-BUILDING (continued from p. 97).

How to build a Model of a 25-ton Yacht.—We will here note that the gunwale, stanchions, waterways, hatchways and sills, rudder and tiller, and all the other fittings on the deck, should be made of close-grained mahogany, and the bulwarks of straight-grained yellow deal, and varnished. The tops of the hatchways and the inside of the frames are the only parts to be painted. They should be white or stone colour, except the small hatch fore and aft, which may be black. As in previous articles, the measurements given are those of the original yacht, which can be reduced to the three-quarter scale by means of the scale contained in ordinary cases of mathematical instruments.

Now proceed to fix the deck by so bradding it to the main-deck beams that the brads are concealed by the water-way. Fix the water-way, using as few brads as possible; punch them in, and fill the holes with putty, coloured to match the wood. Do not brad the deck to the cross-beams, except where the brads will be covered, such as under the after-deck, and under the sills of the hatchways, over the main cabins. The frames of the hatches, fore and aft, are marked *a* (Fig. 4), rebated and mitred at the angles, which are 2 feet 2 inches and 4 feet square respectively, outside dimensions, and projecting 3 inches above the deck. These hatches are flat on the top. The frames are fitted in the deck between the cross-beams, as indicated on page 97. The main hatchway or companion is 10 feet 8 inches long, 4 feet 4 inches wide outside, and 1 foot 6 inches high from the deck. The heads and sills, *b, b*, are 3 inches in thickness and 4 inches in breadth, and the mullions 5 inches in breadth, and the corner mullions 5 inches square, rebated and fitted together, as represented in Figs. 1, 3, 5, and 9. The mullions, *a, a*, are tenoned into the head and sill, and these are dovetailed into the mullions, *c*. The ends of the hatchways are plain, and tongued into the corner mullions. The top, *d*, is 1½ inch thick, and curved like the deck. The openings in the sides are filled in with mica, bedded in putty, to represent glass. The cover of the companion, Figs. 5 and 9, is 1 foot 10 inches square, working between two guides, *f, f*, fixed to the top of the hatchway. At the end are represented two doors, *g, g*, Fig. 10. Now make the frame to fit the inside of the hatchway, and fix it in the deck; then fix the sill, which is 1½ inch thick, and 5½ inches broad, and rounded on the edge, and brad them to the deck. Next make the small hatchway, and construct it in the same manner as the above; the breadth and height being the same, the only difference is the length, which is 3 feet 11 inches, and having glass on the four sides.

On the top of these hatchways is a skylight, 2 feet 6 inches long by 2 feet 3 inches wide (see Figs. 5 and 6). Figs. 7 and 8 are sections to an enlarged scale of the frame and ridge. These hatchways must be removable,

and made secure by some simple means. To make them will require some skill and experience, and where the trouble is thought to be too great or difficult, the sides may be plain and tongued into the corner pieces, the same as the ends, *m* (Fig. 3), but of course it will not give to the model the same amount of finish.

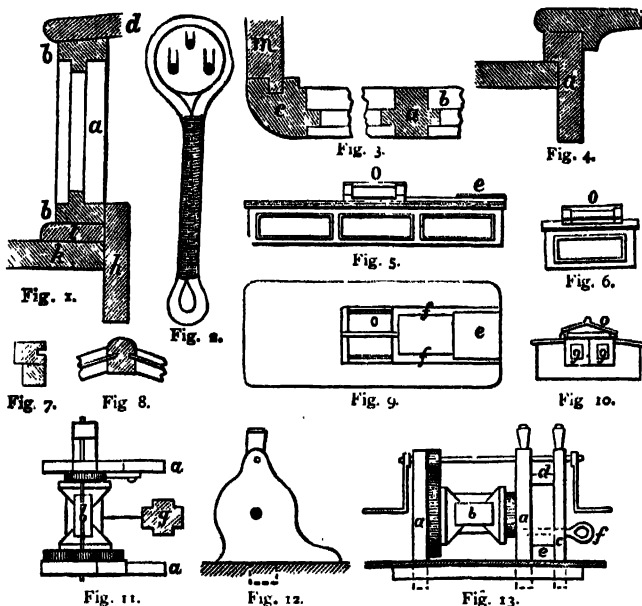
The windlass for hauling up the anchor is represented by Figs. 11, 12, and 13. The frames are 4 inches thick and 1 foot 10 inches broad through the axis of the barrel, and shaped as shown in Fig. 12. The space between them for the barrel is 1 foot 10 inches. The barrel, *b*, through the centre, is 9 inches, formed as shown by *g*, Fig. 11. The ends of the barrel are 1 foot 3 inches diameter. A ratchet wheel is fixed on one end, and a cog-wheel, 1 foot 9 inches diameter, at the other, which is worked by a pinion, 3½ inches diameter, keyed on to a spindle. On each end of the spindle a crank is fitted (see Fig. 13). That part of the frame marked *c* is 4 inches by 6 inches broad, and connected to the frame of the windlass by two chocks, *d* and *e*, leaving a space between of 8 inches for the bowsprit, which bears on the bottom chock, and fixed by the pin, *f*. A tenon is formed on the bottom of the frames, and let into the deck. If desired, the windlass may be dispensed with, and adopting in lieu of it a stanchion, the same size as *c*, and similarly connected together and fixed. A hole is made for the bowsprit in the bulwarks, on the larboard side of the stem.

The rudder, *a*, Fig. 17, is 6 inches square at the head, and has a hole 4 inches square, and slightly tapered to receive the end of the tiller. The rudder is diminished from the head to 3½ inches in thickness at the bottom; it is 2 feet broad at the widest part. The tiller is 7 feet long and 4 inches square

where it fits the rudder, and is curved and diminished to 2½ inches, as shown in Fig. 16. Over the hole in the deck for the rudder fit a piece of mahogany, 1 foot 9 inches broad, and 1½ inch thick, and round the edges; one end will fit against the riser of the afterdeck (see Fig. 22). A similar piece, 2 feet 9 inches long, 2 feet broad, and 1½ inch thick, and the edges rounded, should be fixed to the deck under the mast, one end to fit into the sill of the main hatchway, and cleaned off flush with it (see Fig. 21). Then fix on this an octagonal block, *b*, 12 inches across the sides, and 1½ inch thick, with a groove for the tenon on the bottom of the mast to fit into. Then fix a stanchion under the mast, between the keel and the deck, to strengthen it.

The heel of the mast is thus made, that it may be readily struck for the convenience of packing the model in a case, which will require to be 53 feet long, 14 feet wide, and 14 feet 6 inches deep inside. Then, by simply lowering the topmast, and taking the pin out of the bowsprit and running it back, and turning up the booms, the whole of the rigging can be laid on the deck. Some means must be contrived for steadying the model in the case to prevent friction and damage.

It will now be necessary to float the model, and ascertain the weight and the proper distribution of the ballast



required to immerse it to the water-line, *E*, on the sheer plan (Fig. 1, p. 17), by placing stones, or any other weighty material between the ribs, separating them by a piece of cardboard. Then note the weight of each lot, and make wood moulds to nicely fit the keel and planking—which can be done more conveniently when only three or four of the planks are fixed. Well grease or oil them, and make plaster of Paris moulds. Let these get thoroughly dry, then balance one in a pair of scales; put in the weight required; and run lead into the mould until the weight is counterpoised; and proceed in like manner with the others. Cast in the middle of each weight a wire staple or screw-ring. These weights will be put in place or removed by taking off the large hatchway. By thus distributing the ballast, the symmetry of model is not disturbed, as would be the case if the lead were placed on the keel, which is too far from the centre of gravity of the ship.

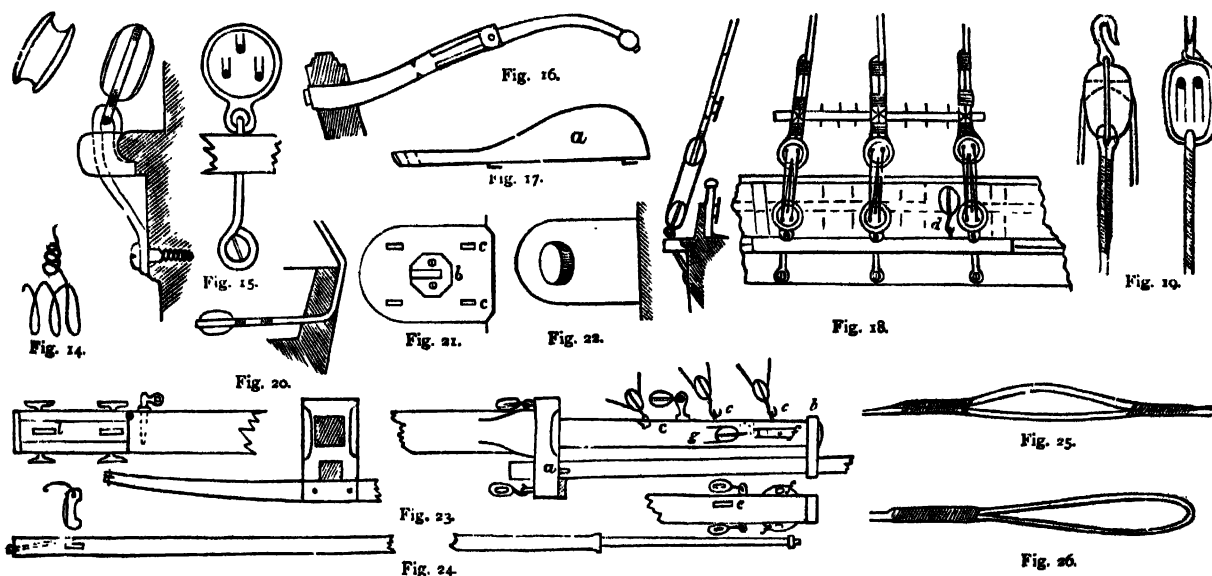
In describing the spars, rigging, and sails, it will be necessary to avoid technicalities, which would confuse rather than assist the amateur. And where the details

chisel fashion, will make the best tool for the purpose. The strap of the lower dead-eyes may be of copper wire, and neatly soldered where the ends meet at the neck, just above the small eye; or a rope may be used instead; taper the ends to lap them without increasing the size, and bind them together with spun yarn, leaving an eye at the bottom for the screw (see Fig. 2).

In giving the size of a rope, it is usual to give the circumference, but for small cords required for models, the diameter will be more convenient.

The spars should be made of straight-grained yellow deal and varnished, and the following parts may be painted a buff colour, viz., the octagonal part at the bottom of the mast, and the upper part above the top boom; the topmast, 4 feet up from the bottom, and 4 feet 6 inches down from the top; the cross-tree; and the part of the bowsprit that is within the bulwarks. All the standing rigging, such as the fore and back stays, and shrouds, and bowsprit side stays, and also the dead eyes, should be painted black, and varnished.

The mast (Fig. 23) is 30 feet from the deck to the under



are clearly defined in the diagrams the description will be as brief as possible.

The sheave-blocks should be made of boxwood, and the holes drilled; and when for two or more sheaves, the holes should be as close together as possible; a brad-awl will not do for the purpose. Time and trouble will be saved by cutting out a length across the grain of the wood, of the required length and breadth of the block; then mark the holes with a centre-punch, and drill them, shape them, and then cut them asunder of the required thickness, which should be marked off when setting out the holes; then shape the sides as shown in Fig. 19. The dead-eyes for the shrouds may be prepared in like manner, shaped, and cut asunder; drill the holes for the lanyards and shape the sides, and form the hollow round them for the shrouds with a coarse round file. The hook and strap of the blocks should be made of copper wire, cut off to the required length, and tapered at each end for the hook and for neatly bending the other end round the neck of the hook, as shown in Fig. 19. In some cases it will be necessary to take one end of the lanyard under the strap, and fasten it with spun yarn, as shown in Fig. 19. In that case the wood must be cut away for the purpose. In forming the hollows for the lanyards, and rounding the holes to the form of the sheave, a brad-awl, sharpened

side of lower cap, *a*, and from this to the upper side of top cap *b* is 6 feet. The diameter above the lower cap is 7 inches, and at the top 6 inches. The top cap should be of brass, and the hole for the topmast so arranged as to bring the point of it over the top of the lower mast. Fix the three eyes, *c*, *c*, *c*, for the $4\frac{1}{2}$ inch single sheave-blocks for the peak halyards, the lower one must be out of the centre of the mast, so as to be clear of the tackle of the boom-topping lift. The eye-bolt for this must project from the mast, so that it will clear the lower cap. The blocks for the boom-topping lift are 5 inches long, with double sheaves. A sheave hole is formed at *e* for the topmast lift, and below the top cap are two cleats, *f*, *f*, with sheave holes for the bowsprit stay; let one end be made fast to an eye-bolt in the deck, *c*, Fig. 21, then rove through the cleat, and then through a 6-inch block attached to the ring on the bowsprit, then through the other cleat, and the end strapped to double sheave tackle made fast to an eye-bolt in the deck, close to the mast, marked *g*, Fig. 21. The $4\frac{1}{2}$ -inch single blocks, *g*, are for the fore-sail hoist, a similar block is strapped to the point of the jib-sail, through these reeve a single $\frac{1}{2}$ -inch rope, and make the ends fast to the belaying pins, *h*, on the bottom of the mast. The lower cap is 1 foot 9 $\frac{1}{2}$ inches long, 1 foot 2 inches wide, and 4 inches thick, with a hole 3 inches from

the end, $7\frac{1}{2}$ inches square, to which the mast is fitted. The hole for the topmast is 5 inches square, between the two holes is $2\frac{1}{2}$ inches. On the part of the cap-fore of topmast, the cross-tree is fixed by screw bolts. The cross-tree is 10 feet 3 inches long, 3 inches broad, and $1\frac{1}{2}$ inch thick in the middle, and $2\frac{1}{2}$ inches by $1\frac{1}{2}$ inch thick at the ends; form a fork at the ends for the topmast side-stays, and put a pin through to prevent them coming out. 2 feet 3 inches of the lower end of mast is octagonal, and $9\frac{1}{2}$ inches diameter; and 9 inches diameter at the top, or 2 feet below the cap, this part is gradually increased to 1 foot square to form a seat for the cap; underneath the cap at each corner is an eye-bolt. Those at the fore-corners are for the jib-hoist, which is a $\frac{3}{4}$ -inch rope rove through the blocks, and the ends belayed to the mast, same as foresail-hoist. The eye-bolts on the aft side of the cap are for the blocks of the boom stay. These are $5\frac{1}{2}$ single blocks for $\frac{3}{4}$ -inch rope, which is rove through a block on the end of the boom, and those under the cap; make one end fast to an eye-bolt on the deck, the other end to a $5\frac{1}{2}$ block for double tackle, hook the bottom block to eye-bolt on deck. Next set up the mast, and stay it with temporary ropes, and prepare the shrouds of $1\frac{1}{2}$ -inch rope.

SOCIETY.—VII.

BALLS, SUPPERS, ETC. (*continued from p. 195*).

THE next most important arrangement is to provide plenty of light. The ordinary chandeliers and lamps of a household are seldom sufficient for occasions of this kind, and require to be supplemented by hired candelabra or temporary fittings. The ball-room should be furnished with "rout seats," or forms made of cane-work. These take up little space, and are not liable to be displaced, to the inconvenience of the company. There are, in almost all large towns, furnishers of requisites for the ball-room, and to these warehouses it is better to apply when the giving of a ball is of unusual occurrence. Confectioners also generally contract to supply everything necessary for the ball-room as well as the supper, if required to do so.

As soon as the number of guests expected is ascertained, the hostess should bespeak any extra attendants she may want, and give the order for the supper and refreshments. As a general rule, it is better to let a confectioner find everything, at the rate of a certain sum per head for an average number. The price, of course, varies with the nature of the order given. The only things which house-keepers generally find it profitable to provide for ball suppers are solid fare, such as cold joints, beef, hams, tongues, chickens, and lobster salads. Wines, also, are mostly provided by the host. By the adoption of this plan, the confectioner is required only to set such things on the table as belong to his particular branch of business, and these articles he can generally supply at a cheaper rate than private persons can.

The most expensive contracts are those for what are termed "sit-down suppers." This is a repast at which all the guests are seated. If the company be numerous, the guests have to succeed each other at intervals required for re-arranging the tables. It is imperative that any viands that have been cut should be replaced by fresh ones for succeeding visitors. To make a selection of guests to be well-cared for first, and leave the rest of the company to fare as best they can from remnants, would be the height of ill-manners.

A modification of the former arrangement is for all the ladies to be seated, whilst the gentlemen of the company assist in waiting on them. Here, again, consideration is needed on the part of the hostess, lest the ladies should remain too long at table, and also lest sufficient relays of fresh viands and table requisites should not be forthcoming for the gentlemen.

It must be stated that neither of these plans is very satisfactory. A ball being essentially an entertainment suited to young people, a set supper is somewhat out of place. Lovers of dancing are generally content to sacrifice some of the pleasures of the table to that of dancing. For this reason a most convenient arrangement appears to be one by which it is understood that at, say twelve o'clock, supper will be served, leaving the guests to go down with their partners just as they please. Previous to that hour the dining-room, which may throughout the evening have been devoted to light refreshments, should be closed for half an hour, to enable the attendants to prepare the more solid fare. Every available space where tables and buffets can be placed should be supplied with viands, plates, glasses, &c., leaving the company to select their own locality. As soon as the appetite of one set of the company is satisfied, others should take their place, and so on, till every one has been served. The host should stay in the dining-room as long as convenient during the period of supper. The hostess, after having been re-conducted to the drawing-room, remains there, finding escort for those who have been left behind, and seeing that no one is overlooked.

Good music is indispensable to the success of a ball. The pianoforte is not sufficient. A cornet is a valuable addition, and for most private rooms is enough. The harp is sometimes preferred, but the latter instrument possesses the disadvantage of taking up a great deal of room. If several musicians be engaged, they should be placed in some room or gallery adjoining the ball-room.

At balls all doors should be taken off their hinges except those which are to be kept closed during the evening. The keys of the latter should be removed. Muslin hangings should be suspended at the sides of the doorways whence doors have been removed. Flowers assist greatly in making a ball-room look gay, but highly-scented flowers and shrubs should be excluded.

A cloak-room should be arranged for ladies to unwrap in. Numbered tickets should be provided, and pinned on each lady's wrappers, and a corresponding ticket given to the owner. Gentlemen leave their hats and coats with the servant in the hall, unless an apartment be especially appropriated to their use. Gentlemen who wear opera-hats, however, frequently carry their hats with them the entire evening, thus avoiding the delay of getting them when leaving. It is very questionable whether gentlemen who do not dance should be present at all. They are certainly out of place lounging round the entrances of the room, or standing in the way of the dancers.

Strangers, when they meet at a private house, are not supposed to dance with each other without an introduction. If a gentleman should omit to seek this advantage, he should not feel surprised that a lady refuses his offer and accepts another from a more eligible partner. The ceremony of a ball-room introduction is a very slight matter. If a gentleman sees a lady with whom he would like to dance, he has only to go to any member of the family, or person that represents the host, and ask him to present him to the lady, for the form to be complied with. The introduction need not hold good for recognition afterwards unless the lady be so disposed.

Promenading in a private room after a dance is not now in fashion. On the termination of a dance the gentleman should offer his left arm to his partner, and conduct her to her seat near her chaperon. He should then make his bow and retire.

Cards, with the list of dances inscribed, are generally supplied for making engagements at balls. Once made, an engagement should not on any account be broken. If such should unavoidably be the case, the lady or gentleman, whose fault it may be should not dance during the dance in question. If, for instance, two partners should claim one lady for the same quadrille or valse, the

lady, having inadvertently engaged herself to both, should decline dancing with either, but should set the gentlemen free to choose other partners.

The last dance before supper is one of great interest to partners, as the gentleman escorts the lady with whom he then dances to supper.

It is not considered well-mannered to leave a ball immediately after supper; some little time should be spent in the ball-room afterwards. Chaperons, however, who are particularly careful of their fair charges, make it a general rule to retire after the first dance after supper. The manner of retiring should be unobtrusive, in order not to set an example which might tend to break up the party.

The dress worn by young ladies at a ball should be of a light and gauzy kind, and of a length of skirt that enables the wearer to thread her way without impediment to herself and other dancers. Trains are quite out of place in a ball-room, and even if carried over the arm, are simply an encumbrance. Gentlemen wear the ordinary black suit that constitutes full evening dress, with very open waistcoat, white necktie, and light lavender or white kid gloves. A button-hole bouquet of choice flowers is now-a-days very general.

After a ball, guests call at the house of the host and hostess and leave cards, or pay a personal visit, within two or three days at the latest.

COOKERY.—LXXXIII.

FRENCH DISHES, ETC. (continued from p. 190).

Langue de Veau à la Braise.—Trim the tongue, and steep it in boiling water to loosen the skin that covers its surface, which must then be removed. Then cover it with thin slices of bacon, seasoned with salt, pepper, and nutmeg, together with chopped parsley, chives, thyme, and other seasoning herbs. Now line the inside of a stewpan with slices of bacon and minced beef, and place the tongue in it, together with onions, parsley, basil, mushrooms, salt, and pepper. Moisten them with a glassful of white wine, and the same quantity of *bouillon*, and lay more minced beef and slices of bacon over it, so as to cover it. Put the lid on the stewpan, and place burning charcoal on it, and let the stewpan simmer over a moderate fire for about six hours. When the tongue is sufficiently done, cut it down the centre without dividing it, spread it out on a plate, and serve it at table with sauce garnished with small cucumbers.

The sauce for this dish is prepared with *roux*, mixed with the gravy furnished by the tongue while it was being cooked. Boil it down to a proper consistence, and then add the juice of a lemon, or some vinegar, and the cucumbers.

Langue de Bœuf à la Braise is cooked in a similar manner.

Oreilles de Veau Farcées (Calves' Ears with Force-meat).—Clean some calves' ears, and place them in a stewpan lined with slices of bacon, and lay more slices over them. Pour over them equal parts of white wine and *bouillon*, together with some slices of lemon from which the pips have been removed, or some verjuice. Add also some onions, carrots, and other vegetables cut in slices, together with parsley, chives, thyme, bay-leaves, &c., cut into small pieces, and cook them at a gentle heat. When sufficiently done, remove the ears, and drain them, then fill them with some cooked forcemeat, dress them with eggs and butter, and brown them carefully under a hot cover.

Oreilles de Veau à la Napolitaine (Calves' Ears Dressed in the Neapolitan Manner).—Dress the ears with bacon, and the other materials as previously directed. Then make a stuffing composed of bread-crumbs, milk, and

grated Parmesan cheese, boil it down, continually stirring until it becomes thick. Add afterwards some butter, and the yolks of four eggs. Mix the whole well together, and fill the ears with the composition. Then dip them in butter, and cover them with bread-crumbs and grated cheese, and brown them under a hot cover.

Pieds d'Agneau à la Sauce Tomato (Lambs' Trotters with Tomato Sauce).—Place the trotters in a stewpan with some sweet oil over a clear fire, and turn them frequently until they become brown; then lay them on a dish and cover them with tomato sauce.

Pieds de Mouton à la Sauce Tomato.—Mutton trotters are dressed in a similar manner, with tomato sauce.

Tête de Veau Farcée (Calf's Head Stuffed).—Blanch a calf's head, and remove the bone as directed for *Tête de Veau au naturel*, cutting across all the flesh under it. Remove the brain, the tongue, and a portion of the flesh of the cheeks, and other parts where it is thick. Cut the meat into thin slices, or into small pieces of the shape of dice, then chop up some fillet of veal with beef fat and seasoning herbs, and mix them well together; or if preferred, place them in a mortar with three whole eggs, and beat them into a paste, at the same time adding some *jus* and two spoonfuls of brandy. Mix these materials with what has been removed from the head, and season them with pepper, salt, and nutmeg. The calf's head from which the bones have been removed, is then to be placed on a cloth, and the stuffing introduced; arrange the meat over it, and fasten it with string so as to preserve as much as possible the usual shape of the calf's head, and tie it up in a cloth. Place it in a vessel of the proper size, with equal parts of *bouillon* and white wine, with a carrot, parsnip, four onions, and some slices of lemon from which the pips have been removed. Add also some parsley, chives, bay-leaves, thyme, and a little garlic if thought necessary, with salt and pepper. Let them simmer over a gentle fire for at least three hours, until ready, then remove the head from the vessel, take it out from the cloth, and lay it carefully on a dish. Now boil down a portion of the liquor in which it was boiled, with some mushrooms cut into small squares, an anchovy chopped up into small pieces, together with more *jus*. When the liquid has become reduced to the proper consistence for sauce, add to it some small cucumbers, cut in slices or strips, and squeeze the juice of a lemon over it. Sometimes calf's head is served at table when cold, as an *entremet*. In this case it should be boiled in white wine, with the usual seasoning, and half a pound of bacon cut small, and fried, until it has begun to turn brown. It is also necessary to moisten the calf's head with lemon-juice before tying it up in the cloth.

Tête de Veau en Tortue (Calf's Head Dressed like Turtle).—Cut into small squares any portions that may be left of the head of veal previously served at table, and it is immaterial in what manner it may have been dressed, whether *au naturel* or *farcée*. Then dress in butter some mushrooms, and some veal sweetbread. Add a little flour, and *jus au vin*, if you have it, or some *bouillon*; or if the calf's head was dressed *en farcée*, some of the liquor in which it was boiled. Add to it two glasses of white wine, with salt and pepper. Simmer down the materials to the proper consistence, and then put in it some *quenelles* prepared with veal, some small cucumbers, the entire yolks of some hard-boiled eggs, and the whites cut into pieces. When the liquid is sufficiently thick, pour it over the meat, and place the dish near the fire to keep it as hot as possible without boiling. This ragoût may be served with a whole head *farcée*.

Tête de Veau Frite (Fried Calf's Head).—Cut in pieces any portions that may be left of the cooked head of veal, and soak them in a mixture of vinegar and white wine, *bouillon*, salt, pepper, and spice. Then cover them with *pâte de friture*, and fry them, at a moderate heat.

CONSTRUCTION OF LOCKS.—I.

ONE object of the articles on this subject is to furnish the householder with a means of determining what lock he should purchase for each respective purpose, depending on the extent of security he desires to effect. The other object is to impart such a knowledge of the construction of locks, and of each lock in particular, as may enable the householder to clean, and to rectify any small derangement to which locks are all liable; as also to give him an idea how to remove them, or fit and put them on; besides adapting keys by filing and other means.

Construction of Locks.—Locks consist of springs and bolts for the purpose of securing doors, drawers, desks, safes, and other enclosures. This they do by means of an interior bolt, which ought not to be capable of being moved except by the application of a key, or by some secret method of manipulation.

Common locks have a strong bolt, which must be fitted in a proper box or case affixed to the door, so enclosing the bolt that it cannot be withdrawn except by the application of the key.

The key should enter the lock by a small key-hole and be surrounded with wards, so as to allow the passage through which it passes in turning to move the bolt to be very crooked and intricate, for the purpose of preventing the introduction of any instrument or false key to withdraw the bolt.

In tumbler-locks, the tumbler is a catch or click which holds the bolt to prevent its being withdrawn except the tumbler be removed by the key, which is done at the same time that it shoots the bolt.

Common locks cannot be made perfectly secure from being picked or opened without the right key, from the circumstance that the wards, though they may be variously disposed so as to require a very crooked key, must be always left fixed in the lock, and their figure may be taken by introducing a small false key, covered with wax, or other plastic substance to receive the impression of the wards. From this impression may be constructed a false or skeleton key which will enter the lock and withdraw the bolt; or, if it only succeed in raising the tumbler, the bolt may sometimes be forced back by other means. Another reason for the insufficiency of an ordinary lock is that the variations in form and structure which the wards are capable of are very limited; therefore, it is impossible to turn out a large number of locks without many of them being of similar pattern and construction, and with keys capable of opening each other reciprocally. Hence they afford but an imperfect security; as any ill-disposed person may, by furnishing himself with a great variety of old keys, be enabled to open almost any common lock, particularly if these keys are filed away to skeletons, that is, leaving as little as possible of the solid part of the keys, which will then have a greater chance of passing in between the intricate

wards. To produce a lock which shall be free from these objections has been the study of many ingenious inventors, whose various locks have different properties and advantages.

It is convenient, but by no means easy, to classify the various descriptions of locks under their respective headings. In many locks there are two or more distinct principles so equally embodied that to decide in which class to place them is a task of no ordinary difficulty. Some locks receive their names from the principles of their construction, such as tumbler-locks and lever-locks; others, from their shape, as D-locks and P-locks for gates; a third kind, from the purposes to which they are applied, as closet-locks, cupboard-locks, and so on. Again, a lock sometimes derives its name from the supposed shape of the ward, as L-ward, T-ward, and Z-ward. Two great classes of locks are the indoor and outdoor

locks. The latter class includes the various descriptions of wooden-stock locks, the D-locks and P-locks above-mentioned, and the many varieties of padlocks.

The indoor locks constitute, as might be expected, a far more numerous and important class. Amongst the principal is the draw-back lock, for street-doors, which may be locked with a key, or the bolt of which may be drawn back by a handle or so acted on by the pressure of a spring as to be left half way out at pleasure. If drawn back by a handle, the bolt leaves the door unfastened; if locked by the key it can only be withdrawn by the same agency; whilst if the spring be used the door is closed, but the handle withdraws the bolt with the greatest ease. When these locks are of coarse construction and made of wood, they are called springstock; when

of iron, and of better finish, they are known as iron-rim locks. There are the mortise, the brass-case, and the iron-rim locks for the doors of rooms; the first of these is of more finished workmanship than the second, and the second is superior to the third. Then, again, room locks are distinguished by the number of the bolts; a lock of one bolt is called a closet lock, or a dead lock; if a second bolt be added, worked by a spring and handle, it is known as a two-bolt lock; while a three-bolt lock is furnished with a private bolt, which acts only on one side of the door. A lock without wards is called a plain lock; sometimes the wards are termed wheels, whence one-wheeled locks, two-wheeled locks, &c. Again, when the wards are of superior quality, and almost circular in shape, the lock is spoken of as one-ward round, two-ward round, and so on. Right-hand and left-hand locks are so called from the edge of the door to which they are fixed; and ring-locks and knob-locks from the description of handle employed.

There are also numerous but less important varieties of locks—drawer locks, table locks, chest locks, book-case locks, carpet-bag locks, caddy locks, besides many others which are known to carpenters and locksmiths. To all

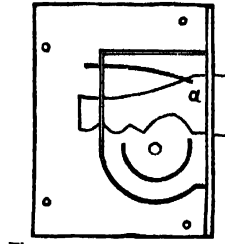
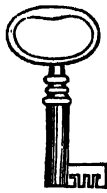


Fig. 1.

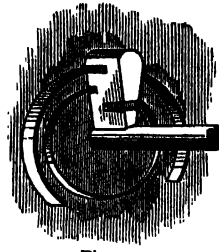


Fig. 2.

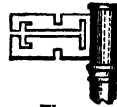


Fig. 4.

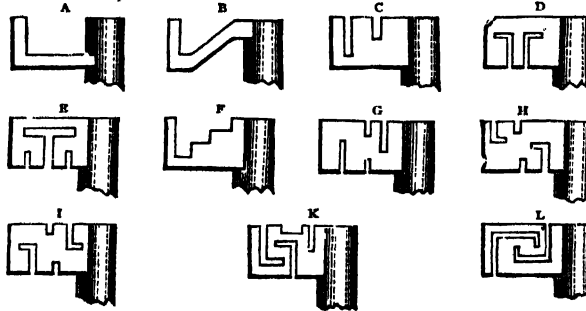


Fig. 3.

these kinds the general name of cabinet locks is indiscriminately applied.

Warded Locks.—We shall now proceed to speak of warded locks, most of which are constructed in the following ways:—First, in the case of the common room-door lock, a bolt shoots out, which catches in some kind of staple or box. Again, a tea-caddy lock is so constructed that the bolt acts upon a staple in the edge of the lock. The web, or flat part of the key, usually revolves round the shaft, when the key enters the lock. Coming into contact with the bolt, the web acts directly or indirectly on it, and moves it according to the impulse received from the turning of the key. The more ordinary locks are oblong quadrangles in shape, and are fitted with wards or wheels, in order to render tampering with them more difficult, unless the proper key be employed.

The ordinary back-spring warded lock, without tumbler, is shown in Fig. 1. It emits a snapping noise when being locked, which is due to the pressure of the bolt during a particular stage of the operation. This circumstance generally indicates its difference from a tumbler lock. The bolt in the diagram is represented as fully shot. On the under side of the bolt, connected by a curved part, are two notches, as shown in the engraving, and above the bolt is the back-spring, indicated by *a* on the figure, which becomes compressed in the rim of the lock, the curve passing through a limited aperture. On the total withdrawal of the bolt, the spring urges one of the notches to fall upon the rim, which movement occasions the snapping or clicking noise before mentioned. The edge of the aperture in the rim receives the other notch when the bolt is shot home. It may readily be seen that any pressure applied to the end of the bolt (and to which it is frequently liable) may force it back, in which case security is at an end. This insecurity is the principal objection to the ordinary back-spring lock. In the diagram the wards appear as portions of circles, and at first sight we do not observe any correspondence between them and the clefts of the key. This, however, is because we do not see the key actually moving. Fig. 2 represents the key in the operation of performing its rotatory motion around the barrel or pipe, as an axis. The wards of the lock (of which there are two in this instance) are curved or circular pieces of metal, iron or brass, whilst in the bitt of the key are two clefts which correspond with the wards, and allow the key to play freely around them. It is obvious that if there were not the same number of clefts in the key as there are wards in the lock, and if these did not fit closely into one another, the desired object could not be attained. It was formerly a received opinion that the number of wards determined the security of the lock.

Fig. 3 shows the action of the skeleton or master key; A and B are skeleton or master keys. It is quite plain that neither of the three keys, C, D, or E, could be substituted for the other in opening the locks to which they respectively belong; but though each of a different pattern, the only efficient part in any of them, and in keys of a far more complicated pattern, is the extremity of the bitt shown in the skeleton or master key, A, which, being provided with the same cavities as the other keys, will, without touching the wards, easily open all the locks. The fixing of wards to the front as well as to the back

plate of the lock, gives a little more security, because then the key, as in F, must be fitted with notches to correspond. Yet it is evident that such a lock could be opened by a skeleton or master key of simple construction, such as Fig. B. Again, it is plain that the wards of the locks to which the three keys G, H, and I belong, differ from each other so much that one of the three keys could not be substituted for another; and yet the skeleton, or master key would not only open all the three with ease, but also any number of locks constructed on the same principle. One patent lock maker professes to make keys in series, having a separate and different key to each, and a master key for opening any number that may be required. So extensive are the combinations, that it would be quite practicable to make locks for all the doors of all the houses in London, with a distinct and different key for each lock, and yet that there should be one good master key to pass the

whole. The wards corresponding to keys K and L are of good form, and complicated; but the keys are so much divided as to be considerably weakened and liable to bend or break through rough handling, and sometimes even from ordinary wear and tear. All the keys shown in diagrams (Fig. 3) are pipe-keys, or keys with pipes or barrels, which fit on a pin or pipe shaft. These keys are adapted to suit locks which are provided with a central pin, and are intended to be opened on one side only. Fig. 4 is a door key, and will open the lock from either side; it may be regarded, in fact, as a sort of double key. The stem is solid, and the central opening in the bitt divides the latter into two parts, one of which only comes into play at a time, so that in opening the door on one side the upper half acts on the wards, while in opening the door on the other side the lower half is brought into operation. The warded lock has received no improvement in manufacture, and, to prove its utter insecurity, a drawing has been made of a lock and key with picklocks (Fig. 5). The original key is shown by D; A is a burglar's instrument, made of tin, which, being covered on one of its faces or sides with a layer of wax and yellow soap, was introduced into the lock and received an impression of the wards; from this impression was made the false key, B, which opened the lock; because, however clumsy in appearance, the cavities in it correspond to the cavities in the true key, and consequently, to the wards of the lock. Even such a picklock as C, by passing round the wards, would open the lock.

There have been contrivances without number for adding to the security of locks, including alarums, escutcheons, wheel and pinion work, multiple bolts, and screws. Nearly two centuries ago a very curious book appeared, called "A Century of Inventions," written by the Marquis of Worcester. Among many suggestions, which have since been developed into practice, he thus describes four of his inventions:—

"A way how a little triangle-screwed key, not weighing a shilling, shall be capable and strong enough to bolt and unbolt, round a great chest, a hundred bolts, through fifty staples, two in each, with a direct contrary motion, and as many more from both sides and ends; and at the self-same time shall fasten it to the place beyond a man's natural strength to take it away; and in one and the same turn both locketh and openeth it."

"A key with a rose-turning pipe and two roses pierced

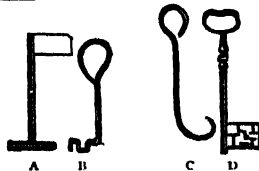
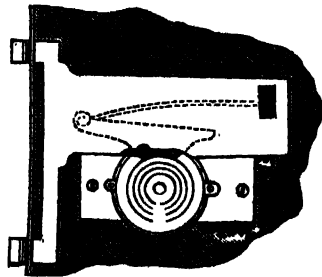


Fig. 5.

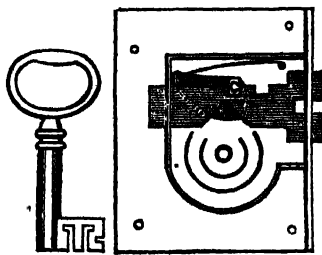


Fig. 6.

through endwise the bit thereof, with several handsomely-contrived wards, which may likewise do the same effects.

"A key, perfectly square, with a screw turning within it, and more concealed than any of the rest, and no heavier than the triangle-screwed key, and doth the same effects.

"An escutcheon, to be placed before any of these locks, with these properties:—First, the owner, though a woman, may, with her delicate hand, vary the ways of causing to open the lock ten millions of times beyond the knowledge of the smith that made it, or of me, that invented it. Second, if a stranger open it it setteth an alarm a-going, which the stranger cannot stop from running out; and, besides, though none shall be within hearing, yet it catcheth his hand as a trap doth a fox; and though far from maiming him, yet it leaveth such a mark behind it as will discover him if suspected; the escutcheon or lock plainly showing what money he hath taken out of the box to a farthing, and how many times opened since the owner had been at it."

There is no doubt that by employing an escutcheon, such as that mentioned by the Marquis additional security would be given to a lock; but it is impossible to resist the impression that many of his statements are purely imaginative. The principle, however, has since been carried into practice. In 1830 Mr. Mordan produced before the Society of Arts a contrivance whereby the picking of the lock was prevented by temporarily shutting up the keyhole. The *modus operandi* is as follows:—A small lock, constructed on any convenient principle, is attached to a short pipe which runs into the keyhole when the door has been locked; and this lock is so constructed that two pieces shaped like lancets are driven out laterally and buried in the woodwork directly the key is turned. The escutcheon remains fast in its position, and the keyhole is completely protected, until the former is removed by the agency of the small key. There have been many ingenious applications of the escutcheon principle, as well as that of the alarm, into which we need not enter more particularly here.

Locks are not very often constructed with wheels and pinions, being so liable to injury from the slightest cause, with a tendency to get out of order without any apparent cause whatever. Sometimes, although unfrequently, the principle of the screw and spiral string is introduced in locks; and the Society of Arts, about half a century ago, conferred a silver medal upon Mr. W. Russell for adapting this principle to locking the cocks of liquor barrels. The application of clockwork to locks is ingenious, but not sufficiently practical to warrant a lengthened description. The same remark applies to multiple bolts, because, if a lock can be picked at all, the number of bolts is usually of very small consequence.

HOUSEHOLD DECORATIVE ART.—LVI.

THE ART OF STUFFING AND PRESERVING BIRDS AND OTHER ANIMALS (continued from Vol. III., p. 366).

Management of Animals which are Intended to be Stuffed—Animals which are intended to be stuffed should be killed with as little external injury as possible. All wounds from which blood may flow over the fur or feathers are objectionable; but as these will sometimes occur, they should be staunched immediately with dry sand or plaster of Paris, or, if the orifice is so large as to require it, a little dry tow should be inserted. The mouth should also be filled with tow, and, if the specimen be a bird, the beak should be drawn together with a needle and thread. When quadrupeds are killed in warm weather, and cannot be stuffed immediately, an incision should be made in the belly, the intestines removed, and

the cavity filled with hay or tow. Small birds should be carefully wrapped in paper to prevent the feathers becoming ruffled. And fish, as soon as taken, should have the gills removed with a pair of sharp-pointed scissors; the fins should be spread out and secured between two pieces of gummed paper; and a piece of tissue paper should be spread smoothly over each side of the fish, to protect the scales: the natural glutinous film will cause it to adhere.

Sometimes, owing to a want of proper care, the feathers of birds may have become soiled with blood or otherwise; to clean and make such feathers look well is a difficult and delicate operation, but one which may be performed successfully with care. The following directions for it are extracted from an admirable little Handbook on Taxidermy:—"Take a little soap and water and a sponge, and nicely clean it, having first provided yourself with some clean white sand and some hair or starch powder. You will then take a clean board, and lay the bird on it, that part uppermost that you have washed; put some of the sand in a dish to warm before the fire; when it is thoroughly warm, take a handful of it and dust it on the wet part of the bird, beating the way the feathers grow, and taking care not to strike the hand in any other than that direction, nor so hard as to break the feathers. When the first sand is wet, take another handful out of the dish, and so continue until you see the feathers begin to get dry; then shake the sand out, and use the starch-powder in the same manner, which will bring the feathers to their proper bloom." This method succeeds better with those birds which have hard feathers than with those which have soft ones, such as the owl.

Skinning Birds.—Supposing the mouth and beak of the bird to have been filled and secured as above directed, it should be laid on its back on a cushion covered with a clean cloth, the feathers first parted along the line where the opening is to be made, which will usually be from the top of the breast-bone, along its edge, and to near the vent; a cut must then be made along this line, just deep enough to divide the skin, but no deeper, with the scalpel or a sharp penknife. The skin must be turned back with a blunt instrument of bone or wood, such as the handle of the scalpel, as far as the legs, some powdered burnt alum or flowers of sulphur being sprinkled on the inner side of the skin and carcase as they are exposed, to absorb moisture and prevent the feathers being soiled. The skin being turned back as far as the thighs, the leg must be taken hold of with one hand, and forced upwards till the knee-joint can be separated with the points of the scissors; the foot must then be forced up till the leg-bone is exposed as far as the ankle joint, the flesh must be cleaned from it, and some of the preservative composition must be dusted over it; a little tow or cotton must be wound round to bring it to its natural size, and the skin again drawn over it. After the other leg has been similarly treated, the skinning must be proceeded with along the sides towards the rump-bone, the flowers of sulphur being frequently sprinkled on to absorb moisture. When the inner end of the rump is reached, the bone must be cut through with the scalpel or scissors, and the skin turned over the back. It will now be more convenient to suspend the carcase by a hook in the rump-bone, and then to skin it downwards toward the wings; when these are reached, they must be separated at the joints nearest the body, and the bones exposed, cleaned, dressed, and stuffed in the same manner as the legs. The skin is now turned with the inner side outwards over the neck and head; and, in skinning the neck, the head must be forced upwards till the skull is exposed, and the neck separated close to it, leaving the skull in the skin. Throughout the whole of these operations, care must be taken that the skin is not stretched, or the proper proportions of the bird will not be preserved. The next proceeding will be to clean all possible flesh

from the skull, to extract the brains with a brain-scoop, to clean the cavity, and to dress the skull with the composition; the skull must then be stuffed with tow or cotton cut fine, and the skin dressed and turned back upon it in its natural position. The eyes must now be carefully removed, the sockets cleaned out, and dressed with the powder; and openings should be cut from the sockets to the mouth, which should also be dressed; these parts must then be stuffed with nicely-cut cotton, and the head made of its proper shape.

As far as this point, the process is the same whether it is intended that the bird shall at once be set up and mounted, whether it is to be laid by for those operations to be performed at a future time, or whether it is merely intended for the cabinet. Should either of the two latter courses be intended, the neck must now be stuffed by thrusting in tow or cotton, and padding it out to its proper shape with a blunt wire or cane. The body must afterwards be stuffed in the same manner, the incision sewn up, and the bird dried, which latter operation will occupy about twenty-four hours at a moderately slow fire.

This method of skinning is applicable to all kinds of birds; but whenever the feathers of the breast are so delicate that their appearance would be injured by making the incision through it, the opening may instead be made under the wing, or, indeed, in some cases down the back. There are some birds which have heads so large that the skull cannot be made to pass through the skin of the neck to be operated upon; these, as the owl and woodpecker, it is necessary to treat by making an opening at the back of the head, which may be sewn up after the brains and flesh are extracted. In other birds, as the peacock or pelican, the wing-bones cannot well be exposed and cleaned in the manner recommended; and in skinning them it will be necessary to make an opening by which these bones may be reached along the fleshy side of the wing: this will afterwards require some care in the sewing up. There is still another class of birds which are furnished with a thick layer of fat beneath the skin: the puffin and grebe are of this order. In skinning these it will be necessary to use a considerable quantity of powdered chalk as the work proceeds, to dry up the oily matter, which otherwise would be injurious; the chalk must afterwards be scraped off.

KNITTING.

I.

ALTHOUGH, as a department of fancy-work, knitting in cotton is no longer so popular as it was a few years ago—having been superseded by crochet and tatting for antimacassars, window-curtains, and like purposes—stocking-knitting, which was, before the introduction of frame-made stockings, a general employment of women of the poorer classes, and which was, indeed, the only method by which those articles were made, has for the last few years been, and still continues to be, a highly fashionable occupation among ladies, whilst fancy knitting in wool still remains as popular as ever. Of all feminine employments, knitting is the one which demands least eyesight, and is, therefore, one of the most valuable accomplishments for those who are growing old, as well as for those whose vision is from any cause defective. Although fancy knitting demands some attention, plain knitting, to those who are become thoroughly accustomed to it, is so much a matter of habit as to become almost instinctive, and the knitter can keep the fingers busily occupied while the mind may be engaged in a totally different direction. Stocking-knitting is the most important department of plain knitting; it is easily learnt, and knitted stockings, though they cannot compare in point of cheapness with woven ones, if the time of the knitter is to be taken into consideration, are much more comfortable, can be re-footed

at home when necessary, and, from their enduring qualities, prove in the end much more economical than those which are woven.

For stocking-knitting some little care is requisite in selecting needles. The best are those known as French needles, and which are somewhat longer than the ordinary English ones. Steel knitting-needles are almost entirely made by the Redditch needle-manufacturers; they should be of good steel, and the quality of the metal may be judged from its polish and appearance. The needles used should be of a size proportioned to the thickness of the material to be knit. The tradesman to whose shop the purchaser goes for yarn, &c., will also sell those needles which can most appropriately be used in knitting it. The price of knitting-needles is very trifling, the set of four costing about twopence only. Knitting as at present practised is a far more graceful employment than it was in the hands of our grandmothers. In the old style of knitting the work was held out considerably in front of the knitter, and a sheath attached to the side was used to support the end of the needle with which the stitches were being taken, that needle being held beneath the thumb; now, however, it is held above the thumb, and supported by it, which is much easier.

Stocking-knitting.—Let us suppose we are about to “cast on” the first stitches of a stocking. Four needles will be used, but at first two only are taken, one in each hand. That in the left is held between the thumb and finger, and passes under the middle of the hand; that in the right is held between the thumb and finger, and passes above the hand. A running-loop is first made in the yarn and slipped on to the left-hand needle; through this loop the right-hand needle is also thrust at right angles to the former. The yarn is passed over the end of the right-hand needle and drawn down to the left, when, by inserting the end of the right-hand needle beneath it, it is drawn through and passed over the end of the left-hand needle, thus forming a stitch upon it, and this is continued till stitches equal to one-third of the number required for the stocking have been formed upon the left-hand needle, when a second needle is taken in that hand and worked upon till another third has been cast on, and so on with a third needle, till sufficient stitches have been formed for the whole stocking. This having been done, the two ends have to be brought together, and the end of the spare needle is thrust through the first-made loop, the yarn brought over the needle and drawn through it; the two ends are thus united. In casting on, the work proceeds from left to right; but now, when the actual knitting has to be begun, it will be in the opposite direction. The right-hand needle is now thrust through the front of the first loop, the yarn is passed over it, and drawn through as before, the stitches as they are made being now transferred to the right-hand needle. This constitutes the whole of plain knitting as used for stockings, and the knitter can go round and round her work, adding to its length without interruption. The stitches, it should be remembered, should not be drawn too tight, or the elasticity of the work will be interfered with; neither should they be too loose, which must especially be guarded against at the juncture of the needles.

In knitting a stocking, it is usual to make what is called a “seam,” running straight down the back of the leg, and this is useful as permitting narrowing to the shape of the leg regularly and symmetrically on both sides. The seam is made in the middle of one of the needles by what is called “purling” or “turning” a stitch in alternate rows. For this the yarn which is ordinarily at the back of the knitting is brought to the front, and the right-hand needle is inserted under that side of the stitch opposite to the one ordinarily taken up; the yarn is then put back, and the work resumed as before.

Narrowing is accomplished by simply passing the right-

hand needle through two stitches instead of one, and forming a single loop upon them; this, in narrowing the leg, is usually done with the third and fourth stitches on both sides of the seam. It is repeated every fifth row. About twenty narrowings is the average in a stocking, the precise number being, of course, regulated by the size and shape of the leg to be fitted. From the narrowings to the heel is a piece of straight knitting. For forming the heel one half of the whole of the stitches which are upon the three needles will have to be brought upon one needle, the seam being in its centre. The knitting, instead of being continued all round as before, will now have to be carried backwards and forwards along this piece, and as in knitting backwards the whole of the stitches would have the appearance of being reversed or "purled," they will have to be knitted as purls on the reverse side, which will give them the same appearance as the rows with which they alternate. About forty rows should be knitted in this manner; eight more rows should then be knitted, every alternate row of which should be narrowed on each side of the seam in the same manner as above. The heel has now to be "bound down;" a row has to be knitted to within three stitches of the seam. Here, instead of proceeding further, narrowing has to be done, then two stitches knitted, then the purl for the seam, then two more stitches knitted, then narrow again. Now, instead of proceeding as before, the knitting has to be turned over, and with the unknit stitches still on the needle, that small piece which lies on both sides of the seam and between the two narrowings is proceeded with; this has to be knitted backwards and forwards as before, narrowing being done at the last end of each needle. The whole of the stitches of the heel are thus taken up and the sides of the piece drawn together, and an elastic band formed down its centre, which will render it much more comfortable than a heel in which the edges are simply joined together. We have now upon the needle seven stitches only, and before we can proceed to knit the foot it will be necessary to pick up the sides of the stitches which form the heel-piece with a fine needle, and to knit upon them; and to conceal any defects in this part it is usual to purl three rows under the heel. As under the heel the stocking is apt to pull, it is now usual to "widen" about six stitches; this is the reverse of narrowing, two stitches being made out of one by knitting from both the back and front threads, or more neatly by taking up the under thread of the stitch, as well as working on it in the ordinary manner. One or two rows must now be knit plain all round, and narrowing must then be begun at those points where the pieces forming the heel and instep meet on either side. One stitch on each side must be narrowed every third row for eight or ten times, or till the proper girth of the foot is reached.

From this point is a piece of plain knitting till the foot has attained sufficient length for the narrowing, which forms the toe, to be begun. There are two ways of doing this, and which of the two should be chosen is altogether a matter of taste. For forming a square toe, one half of the stitches must be upon that needle which crosses the upper part of the foot, whilst the remainder must be divided between the other two that the narrowings may be regularly placed on the two sides. At first the narrowings should occur every third row, at the last stitch but one on the long needle, and at the last stitch but one of those sides of the two short needles which approach the long one. This will have to be repeated five or six times; afterwards it must be continued every second row till the toe is sufficiently drawn in, the two sides must then be joined by knitting them together, which will be done by placing the two needles side by side, taking a stitch from each, and drawing the same thread through the two, these are bound down by drawing the stitches one over the other till only one remains on the needle; the thread

must then be drawn through it, and carefully dafned in, to secure the stocking from unravelling.

For forming a round toe, the stitches must be arranged equally upon the three needles, and narrowed as before, but at each angle; every fourth row twice, then every third row twice, then every second row twice; then narrow as rapidly as possible till one stitch is attained, when finish as before.

The above directions apply to a plain stocking, but it is usual to render the leg at the same time more elastic, as well as more ornamental, by "ribbing;" this is accomplished by alternate knitting and purling. For a wide rib, four stitches may be knitted, then two purled, and this continued all round; for a narrow rib, two knitted and two purled.

Having thus explained the process of knitting a stocking, it will, perhaps, be convenient that we should give concise directions for knitting one that will be of an average size, in eider wool, for a lady:—Cast on 108 stitches; knit 60 seams (120 rows); narrow 20 times, knitting 2 seams after each narrowing; knit 30 seams; take half the stitches for the heel, and widen 6 times, 3 on each side of the seam; knit 20 seams; narrow 3 or 4 times before binding down; widen 6 times after taking up the stitches of the heel; purl 3 or 4 rows; knit 2 rows; narrow till the number of stitches equals those in the ankle; knit 40 rows plain; narrow down the toe as before directed.

A gentleman's sock of an average size, in Scotch yarn, may be knitted as follows:—Cast on 90 stitches; knit 30 seams; narrow 4 times, knitting 2 seams after each narrowing; knit 20 seams; the heel and foot as before. This sock should be ribbed to the heel and down the instep to the toe narrowings.

Materials for Stocking-knitting—For ladies' wear, Andalusian, eider, lamb's-wool, or fine Scotch yarn are best. Andalusian is the finest and softest wool, but does not wear well. It may be bought in all the best colours which will wash; it is sold in skeins, at 6d. each. Eider is also fine and soft, and as it is mixed with a little cotton, it wears better than Andalusian; it may be bought in all colours, in skeins, at 4d. each. Lamb's-wool was formerly much used before the more delicate kinds were introduced; it is warm, but does not wear remarkably well. Lamb's-wool is usually white, and the average price may be said to be 5d. per ounce—the cost of this and of most other varieties varying according to fineness and to the fluctuations of the wool-trade. Scotch yarn is warm, wears well, washes well, and is less expensive than either of the above, though it is less delicate. It is of all colours, and costs about 3½d. per ounce. Scotch yarn is the kind usually employed for gentlemen's socks.

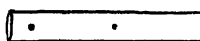
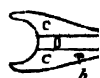
Fancy Knitting in Wool.—At the close of these articles we propose to explain the ordinary terms used in knitting, but before we give directions for the formation of different articles in fancy knitting, it will be necessary for us to give some description of the stitches and patterns which are best employed.

TO KEEP ROOMS COOL.—In very hot weather it is important to entirely exclude the sun's rays by outer blinds, and such as will at the same time admit the air. Our holland English blinds are next to useless, as they not only produce glare but allow the sun's heat to penetrate and enter the room. Some persons think the room may be kept cool by shutting the windows, thereby excluding the air at the same time; but to shut windows is useless, as heat penetrates glass. To prove the fact, heat a poker red hot, and hold it near to the outside of a pane of glass; hold the hand against the glass inside the window, or near it, and the heat will be felt. To show that the heat is not merely that of the heated pane of glass, remove the poker, and no heat will be felt.

HOUSEHOLD AMUSEMENTS.—XXXVIII.

MODEL SHIP-BUILDING (concluded from p. 216).

FIG. 1 represents the top of the shrouds, *a* and *b*, in Fig. 18 (p. 217); pass it over the mast and bed it on lower cap. The corresponding shrouds for opposite side are similarly made; now turn in the dead-eyes, carry up the ends, and lash them with spun yarn, as shown in Fig. 18. The single shroud shown in *c* is formed to fit the mast, as Fig. 25 (p. 217). Let these bed well on the others, and mark off the length and turn in the dead-eyes. The upper and lower dead-eyes should be about 2 feet 6 inches from centre to centre. The bracket irons for the lower dead-eyes should be set 1 foot 11 inches apart, the foremost one to be even with the mast, which is 17 feet from the point of the stem. The shrouds are then made taut by a $\frac{3}{8}$ -inch lanyard, rove through the upper dead-eye nearest the end and stopped with a knot, the other end is



passed through the hole in the lower dead-eye, and, returning upwards, is rove through the middle hole of the upper dead-eye, and next through the middle hole of the lower dead-eye, and lastly through the foremost hole of both dead-eyes. Now tighten up the lanyard and pass the end through between the seizing of the shroud to the dead-eye, make a hitch, take a few turns round the shroud, and lash the end with spun yarn (see Fig. 14, p. 217). The details of the lower dead-eyes, and the mode of fixing them, are represented in Fig. 15. Next set up the forestay (Fig. 26, p. 217) of the same sized rope as the shroud, and pass the lower end through the hole in the stem, which is grooved up the fore part, so that the stay shall not project (see Fig. 20, p. 217). The end is then strapped to a 6-inch three-sheave block, and taken back and lashed with spun yarn, same as the shroud to the dead-eye. Another block is then hooked on to an eye-bolt fixed in the deck, and a $\frac{3}{8}$ -inch lanyard rove through them and made taut. Now put up the back-stay, which is $1\frac{1}{4}$ inch in diameter, and lash them, and strap each end round 6-inch single blocks; through this reeve a $\frac{3}{8}$ -inch rope with a hook at one end, and fastened to an eye-bolt in the gunwale, and strap the other end to a 5-inch double block, having another which is hooked to an eye-bolt fixed in the gunwale, and through these blocks reeve a $\frac{3}{8}$ -inch lanyard.

Now prepare and set up the topmast as shown in Fig. 24, p. 217. The length from the end to the seat for the top-stays is 25 feet 3 inches, and from this to the top is 4 feet. The bottom is $4\frac{1}{2}$ inches square and worked off gradually to a round, commencing 1 foot 6 inches from the end, and tapering to $3\frac{1}{2}$ inches a little below the seat, from this it is

gradually increased to 4 inches square, slightly rounded at the angle to form a good seat for the stays. Above the seat it is reduced to $2\frac{1}{2}$ inches diameter, and to $1\frac{1}{2}$ inch at the top, on which is fixed a circular cap, $3\frac{1}{2}$ inches diameter and $1\frac{1}{2}$ inch thick, having a small sheave-hole, through which is rove the pennant halyard. The topmast side-stays are $\frac{3}{8}$ inch diameter, and have a loop formed to fit the mast tightly above the seat similar to Fig. 25, p. 217, (except that the ends of the rope overrun,) and then bound with spun yarn. The lower ends, about 8 feet from the deck, are strapped to $4\frac{1}{2}$ -inch double sheave-blocks, the lower blocks are hooked on to eye-bolts fixed close to the dead-eye of the fore-shroud (see *d*, Fig. 18, p. 217), and a $\frac{3}{8}$ -inch lanyard rove through them, and the end belayed to the pins on the shrouds and inside the bulwarks.

Next prepare the topmast-forestay, which is $\frac{3}{8}$ inch diameter, having a loop to fit the mast, the end is rove through a $4\frac{1}{2}$ -inch single block, hooked on to an eye at the point of the bowsprit, and through a hole in the bulwarks, and made fast to a belaying-pin.

The top-boom is represented in Fig. 3, and is 25 feet long, the jaws, *C*, *C*,

are mahogany, and the hollow 1 inch larger than the mast. The diameter from the end of the jaws to the middle is $4\frac{1}{2}$ inches diameter, and then tapered to 3 inches diameter at the end; 3 inches of the end is reduced in diameter to form a shoulder for the eye-loop on the end of the peak-halyards. Near the point is a cleat for the sheave-hole, *a*, and another through the jaw at *b*. Through these is rove the rope for setting out the point of the topsail. Hoops, *d*, *d*, are driven on to 6 feet and 11 feet from the point, and through these an eye-bolt for the blocks of the peak-halyards.

The boom (Fig. 4) is 38 feet long and 7 inches diameter, and 10 feet from each end it is gradually diminished to $5\frac{1}{2}$ inches diameter at the points. At one end is a ferule and eye-bolt, *a*, for the boomstay, and a sheave-

hole for the rope from the corner of the mainsail, which is strapped to double tackle, and the lanyard belayed at *c*. Near the end of the boom are two mahogany checks, *e*, *e*, with four sheave-holes in each, for reefing the mainsail. The first hole is 3 feet from the end of the boom, and the others 1 foot 3 inches apart; at *a* is lashed the double sheave luffing-tackle, and the lower block held by an eye-bolt in the deck, and rove with a $\frac{3}{8}$ -inch lanyard. At the mast end is a ferule and double joint, *a*, to connect it with the mast.

The topsail-boom is 16 feet long, 3 inches diameter in centre, and $1\frac{1}{2}$ inch at the ends; 3 inches in length at each end is reduced to $1\frac{1}{2}$ inch to form the shoulders

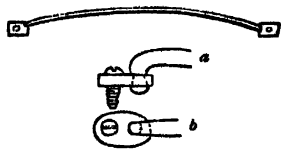


Fig. 2.

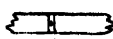


Fig. 3.



Fig. 4.

Fig. 5.

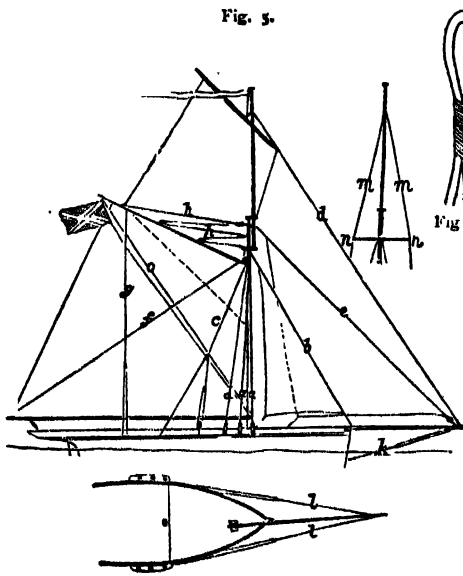


Fig. 6.



Fig. 7.

for the lacing of the sail. A ferule and eye-bolt are fitted on the boom 6 feet from one end for the topsail-hoist, which is rove through the sheave-hole in the topmast. The boom is strapped to a ring working on the mast.

The bowsprit (Fig. 5) is 28 feet long; 4 feet 6 inches of the inner end is $7\frac{1}{2}$ inches square, and there gradually worked into a round $7\frac{1}{2}$ inches diameter as far as the middle, from which it is diminished to $4\frac{1}{2}$ inches diameter at the point. At the point is fixed a ferule having four eyes, *b, b, b, b*, for the side and bottom bowsprit-stays, and for the topmast-forestays, which is rove through a single block, hooked to the top eye, *b*, and the end belayed inside the bulwarks. Near the end is a sheave-hole for a $\frac{1}{4}$ -inch rope hitched to the ring, for taking out the foresail-stays, and the other end belayed to the windlass frame.

Fig. 2 represents a $1\frac{1}{2}$ -inch round iron bar for the jib-luffing tackle; the ends are formed and bolted to the deck, as shown by *a* and *b*. The blocks for the tackle are 5-inch and double sheaves. The luffing-tackle for the foresail is similar, except that the lower block is made fast to an eye-bolt in the deck.

Having set up all the spars and rigging, proceed to make the sails by taking the exact dimensions from the spars, and cord the edges where there is no selvage. The top of main and topsails are laced to the booms, and the mainsail made fast to the rings on the mast, which may be about eight in number, and only large enough to go over the lower part of the mast. The jibsail is made fast to rings set about 18 inches apart on the main forestay.

The next thing is to paint the hull; take care to use paint properly made for the purpose. After giving it a few coats, rub it down with ground pumice-stone to a smooth and even surface, and then lay on one or two coats of black, and as a small quantity will suffice it had better be bought ready prepared in a capsule. Let it be again rubbed down. It will add to the beauty of the model if the immersed portion is painted of a reddish colour, such as red-ochre, red-lead, or vermilion mixed with white-lead in such proportions as to give the required tint. Then give it two or three coats of coach-body varnish; and lastly, prepare for christening and launching it.

Fig. 6 represents the yacht complete. *a, a, a* are the shrouds; *b*, forestay; *c*, back-stay; *d*, topmast forestay; *e*, bowsprit forestay; *f*, boom-stay; *g*, vang; *h, h*, peak halyards; *k*, bowsprit bottom stay; *l, l*, ditto side-stays; *m, m*, topmast side-stays; *n, n*, cross-tree; *o*, ensign halyard.

We have now given complete directions for building a yacht which shall do credit to the constructive ingenuity of the amateur. It is probable, however, that we have somewhat overtasked the skill of those who have had less leisure than others to acquire mechanical knowledge, but who might, if they could obtain some portions of the yacht and rigging ready to their hands, succeed in completing the model.

All appliances, blocks, dead-eyes, and other minor portions of the yacht, can be obtained from any one of the manufacturers of model yachts, &c.

SOCIETY.—VIII.

JUVENILE PARTIES.

THE degree of importance which in some circles is now attached to children's parties causes these recreations to be regarded in the light of ceremonious entertainments. What, indeed, are the juvenile dancing-parties of modern society but stately balls, in which young children play the part in sober earnestness of accom-

plished fine ladies and gentlemen? The ~~neither~~ the mimic beaux and belles approach to an exact imitation of their elders the greater is apt to be the delight of lookers-on, causing the little girl most elaborately dressed and trained, to assume the coquettish airs and graces of some adult model, and to be as much flattered as though she were queen of the assembly. The same mistake is too frequently to be observed in cultivating what are termed "company manners" in young boys. All the modest diffidence of honest boy-nature is liable to be regarded as sheer awkwardness by those who think only of producing a momentary effect.

Dancing is, beyond every other accomplishment, the one which is best suited to the age of childhood. All the most thoughtful writers on the education of young children agree in recommending the graceful art at an age when the limbs are supple and the frame in need of change of posture. But dancing in heated rooms is the least desirable of recreations; and to invite a number of children to perform set figures throughout an evening is after all but a dull amusement. That they are under great restraint for the time being is easily proved by a very simple experiment. For instance, during the time when the adult company in attendance on the little guests are partaking of their supper, the children are generally left to amuse themselves in the drawing-room. A peep at the party thus set free suffices, in almost every case, to show what the natural bent of a child's inclination is. Some one of the party is instinctively chosen to be the leader during the short interval of liberty. This leader, generally one of the eldest girls present, holds a council with two or three companions about her own age, and they agree upon a series of games to be played—games of the most popular kind. "Dropping the handkerchief," "hunt the slipper," "blind man's bluff," &c., are amongst the most commonly chosen, and, with bated breath and hushed mirth, lest the supping elders should be made aware of the romps, the games have full swing. The first grown-up person, however, who appears on the threshold of the drawing-room puts an end to all the impromptu mirth. The party breaks up, groups of twos and threes are formed; vacant seats are filled with demure occupants, and the seating of the musician at the piano is the signal for the *business* of the evening to recommence.

A little thought expended on the natural tastes of children would enable party-givers to confer real pleasure on their youthful guests without harmful consequences. If the giving of a juvenile party is undertaken in the spirit of providing real amusement for a number of little folks, it is but a common-sense suggestion to recommend that amusements proper for their age should be provided. All children delight in novelty, mystery, and fun. They are very capable also of finding endless amusements for themselves, provided free scope and ample room be afforded them of carrying out their inclinations.

Amongst the most enjoyable amusements that can be provided is that of conjuring. If an amateur in the circle of the party-giver can be induced to render his assistance, so much the better. The example of a private gentleman having successfully acquired the art sets before his admiring audience the possibility of performing the same tricks themselves. If an amateur is not forthcoming, a professional conjurer's services can be secured for a trifling sum. We find from two to four guineas is the average expense of such pleasures as children mostly delight in—for example, Magic and Mystery; Punchinello and Dog Toby; Dissolving Views, illustrative of Fairy Tales; Magic Lanterns, &c. The sum is small enough, and capable of procuring novel and interesting amusement for a large number of children.

After the entertainment the most pleasing event is invariably supper. An evening party without the feature

of a well-spread supper-table would be sadly wanting in one of its most popular elements. After supper, round games find an appropriate place. Dancing and such games as are admissible in a drawing-room become then a pleasant change.

At certain seasons of the year special amusements for children's parties suggest themselves. Thus, at Christmas the fir-tree laden with trifles for presents has become quite an established institution amongst us. Much the same kind of mirth may be excited by the suspension of the New Year's Bag. The latter game is of French origin, and is derived from the great respect entertained in France for the New Year. If we call the bag a "Lucky Bag" instead of a New Year's Bag, the pleasure may be enjoyed all the year round. A large bag is made, containing a little present for each child-guest. The bag should be made of glazed calico, of bright colours, ornamented with bows, artificial flowers, and such like. When suspended in a doorway or between folding-doors, a wand is placed in the hand of a child who has been previously blindfolded, and, having been made to turn round three times, the child is told to hit the bag. Being blindfolded, this is not a very easy matter, consequently three or four trials are allowed. If the child hits the bag, a ticket is given entitling the owner to something out of the bag. When all the company have tried to hit the bag, the surplus articles may be drawn for, or distributed by some other means. Both in the Lucky Bag and in the Christmas-tree the pleasure of anticipation, always keen in young children, finds play; and collecting the articles, numbering them, and the like, gives plenty of employment of an enjoyable kind to the children of the party-givers.

Another seasonable game, especially suited to spring-time, and appropriate for garden parties of juveniles, is Easter Nests. As the name implies, the latter game is appropriate at Easter, and affords the chance of out-of-door rambles in the woods and around grounds attached to country houses that far surpass indoor games in fine weather. In Germany and in Italy the game is a well-established favourite, and deserves to be commonly known amongst ourselves. Baskets resembling nests are made of cardboard, wickerwork, and similar materials. These are filled with hard-boiled eggs, stained in various colours. Boxes in the form of eggs, made to open, and capable of containing any little trinket or article, as a thimble, marble, or sugarplums, are very popular. The nests, when filled, are hidden in bushes, perched on trees, or concealed in the grass. The juvenile company is then dismissed to ramble within given limits in search of the nests. Each nest when found is brought into the house, and given to the lady who presides over the festivity. When all the nests are brought in they are distributed. All children delight in taking something home with them after a party; and in such games that pleasure may be gratified at trifling cost.

Whatever kind of amusements may be provided for children's parties, there are none that are so objectionable as card-playing. Very few children can bear losses of any description without the display of ill-temper, or, at least, acute disappointment. Still less do they understand losing such tangible gains as heaps of nuts, sugarplums, or gay counters represent. Nor is the exultant triumph of the winner more edifying. There is scarcely a passion of our frail nature which may not be called into action over a game of cards. Grown people are not exempt from showing great weakness under similar excitement, and can scarcely expect that little children should be superior to themselves. The game also most frequently chosen for the amusement of children is that of Speculation—a game in which the desire to gain, and reap large profits by greedy promptings, is apt to become disgustingly apparent.

The refreshments at juvenile parties should be of a varied kind, and of digestible nature. Partaken of at an unusually late hour, and under considerable excitement, food that at other times might be but slightly indigestible cannot fail to be unhealthy. Medical men tell us that at Christmas their attendance is more in request amongst juveniles than at any other season of the year. It must be so. With cakes, sweetmeats, highly-seasoned viands, and the almost unrestrained liberty to take as much of anything and everything as the young guests please, it would be a marvel if headaches, sickness, and general depression did not follow upon such revels. As a general rule, home-made confectionery, pastry, and beverages are preferable to those obtained at shops. Wine is a very injudicious addition to a juvenile supper-table; still, as comparatively few persons like wine to be absent from a festivity of any kind, it may be inconvenient to dispense with it altogether. It is easy to place the wine on the sideboard, and not on the table. If any one wishes for wine it is there; and only those of the guests who are of an age to know what is good for them should be permitted to assist themselves or serve wine. Lemon, orange, and cherryade are best suited as the beverage for little children. Orgeat, from being a greater novelty in England, is also to be recommended. Fresh fruit and home-made sponge-cakes should present a marked feature at summer parties; likewise those most convenient and ever popular dishes—sandwiches.

It is a great diminution of a hostess's responsibility if some adult member of each family of young children be present at juvenile parties. The latter exercise a tranquil influence of surveillance very much needed at times. The grown people, however, should not trench on the attentions due to the little guests; they should conspire only to amuse. At supper, when such allies are present, they should have the entire control of the little guests, preventing undue mixtures of food, and prohibiting whatever is known not to agree with any of their charges. Attendants of the kind, whether relatives or not, should themselves assist the children when at table.

Of all entertainments for juveniles, none are so suitable as picnics. As this enjoyment, however, is appreciated by many adult pleasure-seekers, suggestions relative to the getting-up of picnics may be reserved for a future

CATTLE.—IX.

WINTER FOOD, OR CATTLE COOKERY.

THE old proverb, "It is in at the mouth that makes the cow," is full of practical meaning. A milch-cow has also been compared to a manufactory—her food being the raw materials, and her milk the manufactured article. In former papers (page 309, vol. i., and pages 7, 44, and 173, vol. ii.) a general outline of the management of milch-cows was given. We shall now bring up the details of practice, confining our observations in this paper to winter food when cows are housed; our subject being cattle cookery and the temperature of the cow-house.

The details of cowkeeping, more especially amongst cottagers and private families, are very diversified, every county having something peculiar to itself. How different, for example, is the practice in Jersey and the other Channel Islands from that in Orkney and Shetland or in Kerry, Ireland. We make the comparison, because the three breeds of cows are small, and from the improvements recently made in the dietary and housing of stock, the richness and quantity of milk yielded by the small Orkney and Shetland cows will bear comparison with the produce of the others.

The improvements in the dietary refer chiefly to the

growth of mangel-wurzel, kohl-rabi, carrots, parsnips, potatoes, and cabbages in the southern counties, and of swedes, yellow turnips, carrots, and potatoes in the north, and the cookery of these with the other products of the small farm as subsequently directed. And the improvements in housing refer to the heating and ventilating of cow-houses, dairy-houses, and poultry-houses by a small stove, as in greenhouses, vineries, harness-rooms, &c., so as to preserve a pure atmosphere of a proper temperature, such being found essentially necessary to the normal economy of food, and the secretion of rich milk.

The two questions of temperature and food are in practice inseparable from each other; thus, if the temperature in one cow-house is 40° and in another 60° Fahr., the cow in the former requires to consume an extra quantity of food to keep up animal heat, which, in practice, generally means a starved cow, and a small quantity of inferior milk, with little cream; whereas the cow in the latter often gives extra milk, and more of it in winter than in summer. Where there are only two cows housed together and even in large herds of thirty to one hundred cows the rise in the temperature of the cow-house, by the breath and insensible perspiration is most objectionable, both to the health of the cows and the quality of their milk.

Cow-houses are heated and ventilated during winter on three different plans:—1. The old plan of the cottage fire. 2. By a flue or hot-water pipe. 3. By a small stove, as in a room. Of these the latter is the more healthy for the cows, but with very little art may be conjoined with the former two in many cases.

Of the first plan we know numerous examples where the cottage, cow-byre, stable, &c., form one range of buildings, and where the cow-byre and poultry-house adjoining the cottage is heated by the cottage fire—*i.e.*, the gable wall being heated gives out its heat to the cow-house. The imperfections of the system need not be pointed out, but were the cottage fire fed partly with the foul air from the cow as in some Dutch dairies, and the cottage fire kept burning all night, the objections would be obviated both as to temperature and ventilation. In short, the cow-house would then be heated and ventilated on the principle of a room on the third plan.

Under the second plan the atmosphere in the cow-house is too close and confined unless sufficient openings are left for ventilation, which, practically speaking, means a greater expense of fire. When heated by a flue or hot-water pipe, a very small fire will suffice for two or three cows—much less than for a greenhouse of the same size, owing to the natural heat of the animals. Under this system, however, the cottager must bear in mind that a heated and confined atmosphere is as objectionable for his cattle as it is for himself, although it may answer for a short time. The objection applies with still greater force to cow-houses with closed doors and windows, so as to heat them with the breath of the cows.

The third plan is a small stove, so placed as to heat the cow-house on the principle of heating and ventilating a room. The practice is too common and familiar to require a detailed explanation. Its application will best be illustrated by an actual example. A private family has two carriage-horses and two cows in a stable; adjoining is the harness-room, in which there is a small stove; on the other side of the harness-room is the coach-house. The stable and coach-house communicate with the harness-room by a door on each side, and when the doors are left open the small stove ventilates both, keeping them dry and at the proper temperature; and the trifling expense of coals is far more than compensated by the advantages gained. In connection with the stove there is a small boiler or steam generator, from which a pipe runs through the wall into a tub in an adjoining department for steaming food for the cows. There is a

considerable diversity in the details of construction of examples of this kind and in the mode of using them, but the principle of heating and ventilating is the same. In some cases the fire is kept burning only during the day; in others over night also; the latter is the best plan—a slow, smouldering, heated fire, chiefly to keep up an active ventilation, the thermometer ranging from 56° to 60°. The pipe may be laid on from the boiler, so as either to boil or steam food for cows, as the nature of the feeding materials requires.

Although the winter dietary of milch-cows is neater a common standard than it once was, there is still a greater difference than there should be, more especially in that of family cows. This arises more from caprice than judgment. Some persons will not give their cows any other food than grass in the summer and hay during the winter, because all other foods give the milk a bad taste. Now, although grass is the natural food of cows, the grass of one month differs from that of another month, and grass of one place from the grass of another place, and each gives to the milk its own peculiar flavour. Hay, although made from grass, differs widely from it according as it is green hay, brown hay (much heated), or badly-made hay, and accordingly gives to the milk a very different taste from grass-fed milk. But when families become accustomed to such milk they relish its peculiar taste, and disrelish anything else. The taste of the milk, too, depends as much upon how the food of the cow is digested as upon the quality of the food itself. Turnips have a peculiar acid taste, which is communicated to the milk, but much of it is due to imperfect digestion, from cows eating over-large quantities at a time; but when given in moderation and pulped with chaff, much of the noxious matter passes off, its presence in the milk being imperceptible. Mangel-wurzel, carrots, and parsnips have not the turnip taste, but each has its own peculiar flavour, which it gives to the milk. Cabbages belong to the same family as turnips, but the taste is not so rank. Potato has very little taste. It is otherwise with linseed-cake, cotton-cake, and feeding-stuffs of this class, all of which are objectionable food. Some cows digest cake better than others; but, however well digested, linseed-cake gives to the milk more or less of its medicinal properties, besides the nauseous flavour. The manner in which Galen fed his cows to physic his patients is familiar to all; nevertheless, such milk becomes palatable to those accustomed to its use daily.

The feeding materials, which we have just run over—*viz.*, hay, straw, roots, cake, corn, &c., are subject to a three-fold objection. First, they contain noxious matter injurious to the quality of the milk; secondly, they are abnormally difficult of digestion; and thirdly, they are individually defective in the economy of nutritive properties they contain, and the object of cooking food for milch-cows is to obviate these three objections.

The object of grinding corn is for the twofold purpose of mixing the meal with other feeding materials, and promoting digestion. The third object is to mix the articles of diet in the proportion required, so as to effect the greatest possible economy in feeding-stuff, and give the least work to the digestive organs of the cow. To give any of the ordinary feeding-stuffs alone, as hay, straw, mangel-wurzel, carrots, cake, or corn, is a very thriftless and wasteful practice, as a cow requires to eat an undue quantity to support herself. Take four cows, for example, feed one on hay, the second on mangel-wurzel, the third on carrots, and the fourth on corn; they would consume nearly double the quantity they would do were the four articles mixed in the proper proportion and cooked; and they would not yield as much milk from the large quantity as from the small, and, what is more, the milk from the small quantity of cooked food would be the richest.

The quantity of food consumed by a milch-cow daily is very various—the age, size, and condition of the animal being the same. A small cow giving eight to ten quarts of milk daily may consume at three meals 50 pounds of pulped or sliced mangel-wurzel, 8 pounds of hay and 8 pounds of straw, 16 pounds cut into chaff, 5 pounds of bean meal, 1½ ounce of salt, steamed together, and seasoned, when cool, with ¼ a pound of carob bean-meal and ½ an ounce of ground caraway-seed. Other examples may be quoted, thus:—(2) 56 pounds of mangel, oilcake 2 pounds, bean-meal 2 pounds, and 17 pounds of chaff, 1½ ounce of salt; or (3) 100 pounds of turnips, 2½ pounds of cake, 2½ pounds of meal, 12 pounds of chaff, 1½ ounce of salt; or (4) 230 pounds of turnips, 2 pounds linseed-meal, 2 pounds of bean-meal, 4 pounds of chaff, and 1½ ounce of salt. The proportion of roots in the latter two examples (3 and 4) is in excess. Carrots, 30 pounds, may be substituted for 56 pounds of mangels or 20 pounds of potatoes, but the potatoes should be steamed separately, and afterwards mixed with the chaff, and a few pounds of carrots will improve the potato diet greatly.

Soft filtered water is essentially requisite for milch-cows. Good milk can never be obtained from cows that drink hard water. Hard spring water much impregnated with saline matter is equally objectionable.

UMBRELLAS.

UNIVERSAL, as is the employment of umbrellas among civilised nations at the present time, they are articles of comfort the introduction of which is exceedingly recent; so much so, that a hundred and fifty years ago, any man who ventured to carry one through the streets of London was liable to be followed and hooted by the crowd; and not a century since, almost the whole population of a country town in the west of England is said to have turned out to look at one of these—to them—astonishing novelties.

The umbrellas used during the reign of Queen Anne, and those of the first Georges, were almost wholly brought from abroad, chiefly from India, Spain, and France. Our home manufacture of umbrellas has been altogether a thing of mushroom growth; now, however, in addition to vast numbers used in our own country, the export trade amounts to upwards of £200,000 annually.

At the period when umbrellas first came into fashion among us, for their more modern use as protections from rain, the silk, linen, or cotton with which they were covered, was usually oiled or varnished. After a time, however, it was found that this precaution was unnecessary, and that when tightly stretched, the fabric itself became sufficiently waterproof, and the original practice has, therefore, been discontinued.

For the covering, silk has always been, and still continues to be, the favourite material; its beauty, lightness, and the compactness with which it can be folded up, would appear sufficient reasons for its always remaining in favour for use upon the best umbrellas. The great objection to it is its liability to split, a defect which may be, as we shall see hereafter, to a great extent obviated by the employment of narrow linings of some vegetable material which is less liable to crease than silk. The use of linen or cotton fabrics for covering common umbrellas, which was formerly universal, has now been almost wholly discontinued, owing to the introduction of alpaca. The substance from which this fabric is made, is the wool of the alpaca, a kind of llama, and found only, like the other members of its family, in South America. This material was first introduced and manufactured at Bradford, in 1832; but, owing to the difficulty experienced in spinning and weaving it, this branch of industry was, at first, far from successful. These difficulties were at last

overcome, and the manufacture established by the well-known Mr. Titus Salt, of Bradford, about 1836, who combined cotton warps with the woollen thread; and alpaca soon came into general use as a covering for inferior umbrellas. It is now made with warps of both cotton and silk. Zenella, which is also extensively used as a covering, is a mixture of cotton and wool. It is intermediate in price between alpaca and silk, and is finer and more glossy than the former, though far from equalling silk, either in appearance or in neatness when folded. Foot's patent covering was a mixture of india-rubber with cotton and silk; it is no longer used. For the sticks of umbrellas, no material is really so good as bamboo, for nothing else so completely combines, at the same time, the qualities of toughness and lightness; but fancy woods, and especially pimento, are, from their better appearance, more in use.

In umbrellas, as they were formerly made, the ribs were ordinarily formed of whalebone. This material, from its strength and elasticity, was, in some respects, well suited for the purpose, and was less liable than metal to wear out the material with which it was covered. Now, however, when a neat and slim appearance when folded up are looked upon as essentials, whalebone ribs are almost wholly superseded by steel.

In frames of the older and more ordinary construction, the ends of the ribs are connected with a fixed ring, near the extremity of the stick, while the ends of the shorter rods, always of metal, and known as "stretchers," are attached by rings of wire to a sliding tube, so that the axes upon which they turn when the umbrella is opened or closed, form arcs of a circle instead of straight lines, which occasions much destructive wear; while the outer ends of the stretchers are attached to the ribs by pins passing through the latter, which tends to weaken them greatly at that particular point, and frequently to cause breakages. Recently, however, great improvements have been made in the construction of umbrellas, both as regards these and some other points.

Umbrellas are articles which generally suffer more from careless treatment than from legitimate wear and tear; and an umbrella when properly treated will last twice as long as one that is not so used. When wet, an umbrella should neither be distended to dry, which will strain the ribs and covering, and prevent its ever afterwards folding up neatly, nor at once rolled and tied up, which would tend to rust the frame and rot the textile fabric; neither should it, if of silk, be carelessly thrust into an umbrella-stand, nor allowed to rest against a wall, which would probably discolour and certainly crease the silk injuriously. It should be shut, but not tied up, and hung from the handle, with the point downwards, till it is nearly but not quite dry. It should then be neatly and carefully rolled up and tied. In walking with an umbrella, the hands should be confined to the handle, and not allowed to grasp the silk; otherwise that portion which is held will become greased and discoloured, and the material will be frayed out round the tips, which are points where there is always much stress, and where it will always have a tendency to give way. When not in use, the umbrella should be protected from dust and injury of any kind by its silk or oil-cloth case. When dirty, alpaca umbrellas are best cleaned with a clothes' brush; but brushing is useless for those of silk. Ordinary dirt may be removed from a silk umbrella by means of a clean sponge and cold water, or if the soil should be so tenacious that this will not remove it, a piece of linen rag, dipped in spirits of wine or unsweetened gin, will generally effect the desired end. Grease spots should be removed by laying a piece of clean blotting-paper above and below the silk, and passing a hot iron over it.

The re-covering of an old frame with new silk will cost, according to the quality of the material, from 10s. to 16s.

but a good covering of second-hand silk is put on by umbrella-menders at from 2s. 6d. upwards, and will generally wear almost as long as new, its chief disadvantage being that it is rendered somewhat unsightly by the seams which run down the centres, between the ribs, where the strips of old material are sewn together. So far as regards splitting at the folding places, silk sewn in this manner will last longer than new. In zenella, a new covering may be had for about 7s., and in alpaca for about 5s.

FRUIT DAINTIES.—I.

LEMONS.

To Preserve Lemons.—Place some dry fine sand at the bottom of an earthen jar, and arrange a layer of lemons on it, stalk downwards, taking care that the lemons are not allowed to touch. Then cover them with more sand to the depth of two or three inches, with more lemons on them. Continue to do this until the jar is filled, and place it in a cold and dry place. Oranges may also be preserved in the same manner.

Lemon Paste.—Boil some lemons in water, seasoning the first water with a handful of salt, and boiling them again in fresh water until they are tender. Place them in a bowl, and beat them to a pulp with a rolling-pin, and strain them through a coarse linen cloth, wringing it hard to cause the whole of the pulp to pass through. Place this in a clean saucepan, and add to it an equal quantity of sugar, and boil it down until it is nearly ready to candy; pour it into plates, and dry them in a slack oven. The sheets of lemon paste may then be cut in strips, or any other shapes that may be desired.

GRAPES.

Marmalade of Grapes.—Gather the grapes in dry weather, and dry them in the sun. Then pick them carefully from the stalks, and boil them in water with an equal quantity of raisins. Remove the scum from the surface until two thirds of the water has boiled away, afterwards reduce the heat, and simmer them until they become thick. Then strain the jelly through a sieve, and add some loaf-sugar, or sugar-candy. Let it get cool, and put it into pots, which must be well covered.

To Preserve Grapes.—Take four pounds of white grapes before they are quite ripe. Remove the seeds and put the grapes in a saucepan of cold water. Put the vessel on the fire until the water nearly boils, then remove and place the fruit in cold water. Afterwards take eight pounds of loaf-sugar, put it in a gallon of water, clarify it, and let it get cold. Then arrange the grapes at the bottom of the preserving-pan, and pour the syrup over them, and close the mouth of the pan with a sheet of paper to keep out the dust. Let them remain in the syrup for twenty-four hours without disturbing them. Then place the pan over the fire, and make the contents scalding hot: then put the pan, covered with paper, aside for twenty-four hours. Drain the syrup from the grapes, and boil it down to a soft consistence; pour it over the grapes arranged in a clean saucepan, and put it on the fire until it is ready to boil. Then cover it, and let it stand for twenty-four hours. Afterwards put the grapes in pots and cover them with apple jelly.

COOKERY.—LXXXIV.

FRENCH DISHES, ETC. (continued from p. 219).

Cervelles et Langues d'Agneau (Lambs' Brains and Tongues).—These are prepared in the manner directed for those of mutton.

Cervelles de Veau Frites (Calves' Brains Fried).—This is prepared in the manner directed for *tête de veau frite*.

Langues de Veau (Veal Tongues).—These may be dressed in the various methods directed to be used for *langue de mouton*.

Tête de Veau à la Sainte Menchould.—Cook a calf's head either *au naturel* or *farcie*; cut in slices, and pour over it a sauce prepared in the following manner:—Beat up some butter with half a spoonful of flour, together with salt, pepper, the yolks of three eggs, and vinegar, or lemon-juice, and sufficient *bouillon* to make the sauce of a thick consistence. Then simmer the materials over the fire until thickened. Now cover the calf's head with bread-crumbs, then apply some butter to them, and again cover with bread-crumbs; then place a cover over them, and expose them to heat until they assume a brown appearance. *Tête de veau à la Sainte Menchould* should be served with *sauce piquante*.

Cervelles de Veau en Matelote (Calves' Brains).—Wash some calves' brains, and remove the skin that covers their surface. Simmer them in vinegar and water with salt and pepper. If preferred, equal parts of *bouillon* and wine may be employed for this purpose. Then put in a pan over a gentle fire some butter and a little flour. When they have turned brown, place with them some sliced onions and mushrooms, with cloves, parsley, bay-leaves, thyme, chives, and garlic, if thought advisable. When sufficiently done, add some *bouillon* with a glass of wine, or if the brains have been cooked with wine, some of the liquor in which they were boiled. Season the materials with salt and pepper, and boil them to the consistence of sauce. This sauce will be improved by the addition of a spoonful of *jus au vin*.

Cervelles de Veau à la Poulette (Calves' Brains Dressed à la Poulette).—This dish is prepared in a similar manner to *pieds de mouton à la poulette*.

Cervelles de Veau Frites (Calves' Brains Fried).—Dress some brains either *braisée* or *en matelote*, the former being the preferable way. Cut the brains into slices, moisten them with vinegar, salt, and pepper, dip them in *pâte à frire*, and dress them in butter, not too hot.

Cervelles de Veau Braisées (Calves' Brains Cooked with Wine).—After cleaning some calves' brains, blanch them in boiling water, mixed with vinegar. Then put at the bottom of the stewpan some slices of bacon, together with two carrots cut in slices, the same quantity of onions, two cloves, salt, pepper, bay-leaves, chives, parsley, and thyme, and a glass of white wine. Place the brains in the pan, and dress at a gentle heat. These brains may be served *en matelote*, or any other way that may be preferred.

Cervelles de Veau à la Sauce Verte (Calves' Brains with Green Sauce).—Put in a stewpan some butter, with half a spoonful of flour, and stir them continually, taking care that they do not become brown. Then add some stock broth and a little vinegar, or if it is at hand, some *jus blond*, together with a sufficient quantity of salt and pepper. Boil down the materials into a sauce, and immediately before sending it to table add some *ravigote hachée* and a little butter, and pour it over some calves' brains previously cooked.

Pieds de Mouton à la Sainte Menchould (Sheep's Trotters Cooked with Butter and Herbs).—Boil them in water, and remove the larger bones. Put them in a stewpan, with butter, chives, parsley, salt, and pepper, and expose them to a moderate heat until sufficiently done; then remove the trotters, and allow them to become cold. Now steep them in the contents of the stewpan, sprinkle bread-crumbs over them, and grill them. They are to be served at table with *sauce piquante*.

Langues de Mouton au Gratin (Sheep's Tongues au Gratin).—Boil the tongues in stock broth, with the usual seasoning herbs, cloves, salt, and pepper. Then place at the bottom of a dish by the side of the fire a stuffing composed of bread-crumbs, butter, or bacon chopped up, also parsley and chives, cut into small pieces, and mixed

up with the yolks of two raw eggs and stock broth or *jus*. A sufficient quantity of salt and pepper should also be added. Then place the stuffing on the dish, make it hot, so that the stuffing may adhere to it, and drain off any liquid butter or fat that may float on its surface. Afterwards lay on it the tongues, and pour over them the fluid in which they were cooked.

Pieds de Mouton au Gratin (Sheep's Trotters au Gratin).—Take some sheep's trotters, blanch them in hot water, and clean them. Then put into a stewpan a quarter of a pound of bacon chopped up, the same quantity of dripping, two ounces of butter, the juice of a lemon, a bay-leaf, and two cloves; add also two onions, and the same number of carrots cut into squares, with salt, pepper, and some stock broth. Simmer the contents of the stewpan until the liquid has almost boiled away, and then fill up with water, and skim off the fat from the surface. Put the trotters into this liquid, and boil them until sufficiently done; then remove them from the pan, and proceed as directed for *langues de mouton au gratin*.

Hachis de Mouton Rôti (Roast Mutton Hashed).—Remove all tendons and skin from some cold roast mutton, and cut it up very small, with baked chestnuts or cooked potatoes. Then place a stewpan over a moderate fire, put into it some butter and flour; mix them well, and allow them to become brown. Then put the minced materials into the pan, and fry them all together; afterwards season with salt and pepper, and add some gravy or stock broth, and let them simmer over a gentle fire for one hour. Now add a piece of butter the size of an egg, and serve with poached eggs, garnished with crust of bread cut small.

Hachis de Mouton Rôti aux Champignons (Roast Mutton Hashed with Mushrooms).—To prepare this dish, chop some mushrooms, and mix them with some cold roast mutton previously cut in very small pieces, and then proceed as directed for *hachis de mouton rôti*.

Côtelettes de Mouton Farcies (Mutton Chops Stuffed).—Dress some mutton chops in the manner directed for *purée d'aignons* and when quite ready take them out of the pan. Then remove the vegetables, and boil down the liquid to the consistence of a sauce, and pour it over the chops. Now chop up some veal with beef suet, together with chives, mushrooms, and parsley. Season the minced materials with pepper and salt, and mix them into a paste with two eggs, and some cream if you have it. Then cover the chops with this composition, and arrange them on a dish, and sprinkle bread-crumbs over them; place the dish on some red-hot cinders, and put a hot cover over them, and allow them to remain until they become brown. *Côtelettes de mouton farcies* may be served up either by itself or with tomato or any other sauce that may be preferred.

Côtelettes de Mouton Pandes et Grillées (Mutton Chops Grilled).—Melt a little butter in a pan with some of the herbs usually employed for seasoning, and which have been chopped up as small as possible. Cover the mutton chops with the melted butter, and then sprinkle bread-crumbs over them as quickly as possible. The chops are now to be grilled over a good fire, care being taken that the bread-crumbs do not burn, and that the meat is not too much done. If it should be preferred, oil may be used for this purpose instead of butter. This dish is usually sent to table without sauce.

Hachis de Mouton Rôti aux Fines Herbes (Roast Mutton Hashed with Herbs).—Cut up into small pieces six mushrooms, the same number of shallots, a handful of parsley, and a pinch of tarragon, and mix with some minced roast mutton; then dress the materials in the manner directed for *hachis de mouton rôti*.

Épaule de Mouton au Ris (Shoulder of Mutton with Rice).—Boil a shoulder of mutton in stock broth with onions, carrots, parsnips, parsley, thyme, and other herbs;

season with salt, pepper, and cloves. Then cook a quarter of a pound of rice in the fluid, in which the meat was boiled, taking care not to add too much, so that the rice, when ready, shall be thick. Colour the rice with burnt sugar (caramel), and flavour it, if you like, with a little *beurre de piment*. Now place the shoulder of mutton on a dish, and pour the rice over it. If the *beurre de piment* is not employed, sprinkle over the surface of the rice with grated cheese. Place a hot cover over the dish, and place some hot cinders over it to brown the surface of the rice. If the rice should not be browned sufficiently by this means, serve it up with tomato sauce.

Épaule de Mouton en Sautisson (Shoulder of Mutton with Sausage-meat).—Take away the bones and stretch out the meat as much as possible, spread some sausage-meat over it, and then sprinkle with small cucumbers and mushrooms cut up small. Then put more sausage-meat over it, roll the meat up as tightly as possible and tie it up in a white cloth. Place the meat in a pan with stock broth, seasoning herbs, carrots, onions, salt, pepper, and cloves, and simmer the whole until the meat is sufficiently done. Then remove the meat, skim off the fat, and boil down the liquid if necessary to a proper consistence, and add some *jus* or the yolks of two hard-boiled eggs, and pour it over the shoulder of mutton before sending it to table.

Emincé de Gigot Rôti (Roast Mutton Minced).—Expose to heat in a stewpan over the fire a spoonful of flour and butter until it turns brown. Put into it some minced roast mutton, and add some stock broth, salt, pepper, and nutmeg, and simmer them for one hour. Before removing the pan from the fire, mix with its contents a spoonful of the butter of anchovies, or the same quantity of fine salad oil.

Boulettes de Hachis Frites (Fried Minced Meat Balls).—Take some roast mutton, some chestnuts, and neck of veal boiled in water with salt and vinegar. Cut them up separately into small pieces, mix them with seasoning herbs also cut as fine as possible. Add enough salt and pepper to season the materials, and make them into a mass with the yolks of three eggs. Roll this into balls, and fry in butter until done, and then serve them at table with tomato sauce.

Agneau Rôti à la Bernaise (Roast Lamb).—Take a quarter of lamb—the fore-quarter being the best for the purpose, as it is most delicate—and fasten some slices of bacon by skewers to the outer side. Cover the inner surface with butter, and sprinkle some bread-crumbs over it. Season the meat with pepper, salt, and parsley cut in very small pieces. The meat is then to be wrapped up in a large sheet of paper, to prevent its being scorched by the heat, and put it before the fire to roast. When the meat is three parts done, remove it from the fire, and apply more bread-crumbs to the inside of the meat, then put it down again before the fire until brown. The meat should be sent to table moistened with the juice of a lemon squeezed over it.

Épaule d'Agneau aux Truffes (Shoulder of Lamb with Truffles).—Remove the bones from two shoulders of lamb, and season the inner surface with salt, pepper, and grated nutmeg; and also add some truffles cut in pieces. Place the shoulders of lamb one on the other, and make them into the shape of a flattened ball. Tie the meat with string to keep it in position, and place it in a stewpan, at the bottom of which some slices of bacon and veal have been previously arranged; add also some carrots, onions, seasoning herbs, salt and pepper, with a sufficient quantity of stock broth. Place the lid on the stewpan, and allow it to simmer over a gentle fire for two hours. When done, take out the meat, remove the string with which it was tied, and arrange it on a dish. Afterwards boil down the liquid in the stewpan to the consistence of a sauce, and pour it over the meat.

HOUSEHOLD DECORATIVE ART.—LVI.

RING-WORK.

BRASS rings of various small sizes, and covered with silk or German wool, may be worked into many pretty articles, either alone or with a mixture of beads. The rings are to be bought of any desired size, either blackened or otherwise, by the gross; and they are made with such facility that the cost of them, in a manufacturing town, is little more than the price of the metal.

In doing this work the first thing is to cover a number of rings with wool or silk. Which of the two materials is to be employed must of course depend upon the nature of the article to be made. Where silk can be used it has much the more brilliant effect, and in such things as a

mat for a drawing-room table, a cover for a lamp, or a watch-pocket, it is to be preferred; but working with silk, not to mention its greater cost, demands much more outlay of time, and articles made in it do not last equally well when exposed to wear and tear. Such things as dinner-mats are therefore best made of rings covered with wool. All the rings have to be worked over in button-hole stitch, as shown in Fig. 1, and worked with the edge of the stitch towards the outside only, if the centres are to be left open; but if the centres are to be filled, which will sometimes be desirable for the

sake of variety, the edges of the stitches round the ring should be alternately outwards and inwards. Subsequently the different rings can be sewn together through the edges of the stitches, with a fine needle and cotton if they are covered with wool, and with fine sewing-silk if they are covered with floss silk. By thus simply uniting the rings the patterns are formed, though sometimes a little variety is gained by introducing beads at the points of juncture, and also by filling up the spaces between the rings with beads. Some parts of the design, as shown in our illustrations, may also be varied by filling up the spaces, either within or between the rings, with different stitches in needle or crochet-work, and the rings may thus be filled with stitches in the same colour as that with which they are covered, or in one which harmonises or contrasts with it, according to the requirements of the pattern. Sometimes, as we have shown in Fig. 2, a large ring may have a group of smaller rings arranged within it, or occasionally a small central ring held in its

place by needle-work. In fact much of the effect of the designs will be dependent upon the employment of rings of different sizes, and the mode of arranging them. But in ring-work, the great point to be aimed at, and the one upon which the result will mainly depend, will be good harmonising or contrasting arrangements of colour. Without these, owing to the uniformity of the shape of the rings, this work in any large pieces would be exceedingly monotonous, and for this reason, the designs which we give to be carried out in it, which are necessarily in black and white only, are comparatively ineffective, and fail to give any adequate idea of the beauty of the actual work.

Ring-work is applicable to a considerable number of uses, such as serviceable mats for the dinner-table, or

purely ornamental ones for the drawing-room. Lamp-shades look pretty in it, as do also hanging baskets for flowers. Napkin-rings, exceedingly tasteful, and easily made, may be thus formed; upon a larger scale, curtains thus made may be applied, instead of wire blinds, to the lower parts of windows. In Fig. 2 we give a design for a mat. The central large ring, as well as the seven smaller rings which it contains, are to be covered with yellow silk. The six large rings, and the smaller ones contained by them, are to be covered with crimson silk, while the six

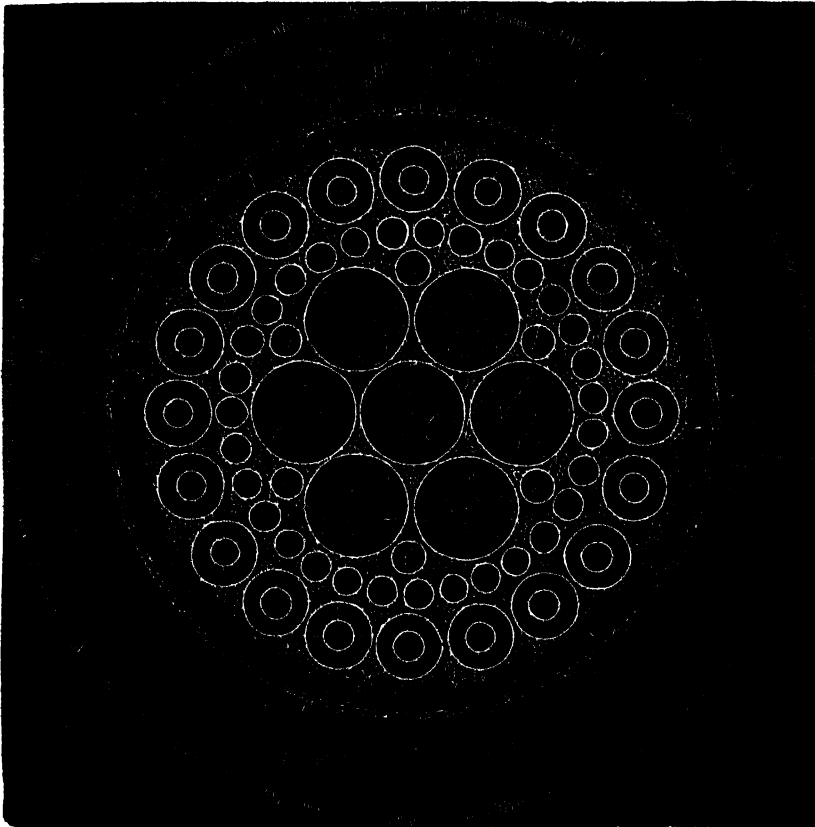


Fig. 2.

small rings which fill up the angles, and the adjoining needlework, should be green. This centre is surrounded by a circle of small black rings, beyond which is a circle of large blue ones, with crimson rings in their centres, again followed by a second circle of small black ones. As the object of the circles of small black rings is simply to isolate parts of the pattern, their place may, if preferred, be filled with bands of small beads of black, white, or, better still, gold colour. Cold thread, or "passing," would have a fine effect if used instead of the yellow silk. The fringe may be of silk variegated, or of beads of different colours, these being shaded from light to dark, the darker part either inwards or outwards, according to fancy.

Fig. 3 is a hanging flower-basket, which will require two hoops of wire for the bottom and top, and a third for the handle, to give the necessary strength. In this the arrangement of colour is, contrasting bands of light and dark. Round the bottom would run a horizontal band of

dark beads to conceal the wire, above and below this would run a row of rings, covered with a light-coloured silk or wool. From the lower of these hangs the fringe of beads. The lip at the top of the basket is also a horizontal band of light rings, and this would be better kept in place if an additional wire were used and passed round the lower edge of the lip. This wire can be concealed by working it over with silk or wool in the same manner as the rings, and from this a fringe of beads, as shown at Fig. 3, may be suspended. The sides of the basket are formed of alternate diagonal bands of rings, in dark and light; the former being smaller than the latter.

Fig. 4 is a lamp-shade intended to be placed over one of coloured paper. Supposing the paper shade below to be of light green, this design may be effectively carried out by working the whole of the rings in crimson, and filling up with beads of a lighter tint of the same colour. Purple rings relieved with gold beads would also have a good effect. A somewhat similar, but more open effect, may be obtained by using large and small rings only.

Napkin-holders are usually made of a chain of small rings merely, but one which retains its form better is shown in Fig. 5. In this two large rings form the basis, the space between them being filled with smaller rings, and bead-work. On the ground of its greater neatness and durability we prefer this latter arrangement.

The articles we have indicated as appropriate for this kind of work may be easily added to, according to the ingenuity and skill of the worker. The effect is invariably pleasing, and the articles are useful as well as ornamental.

KNITTING.

II.

Stitches:—Brioche.—In this the wool is brought forward, one stitch is slipped, and two knit together.

Fringe-pattern Stitch.—Any even number of stitches may be cast on, the wool turned round the needle and brought in front again, then two knit together being taken in front.

Double Knitting.—Any even number of stitches may be cast on. The wool is brought forward and one stitch slipped; the wool is passed back and one stitch knit, the wool being turned twice round the needle; in each row the stitch that is knitted forms the slip-stitch in the next.

Barley-corn Stitch.—Any uneven number of stitches may be cast on. The first stitch is slipped, the wool being kept in front of the needle; then turned round the needle so as to bring it in front again, and two stitches knit together

being taken in front; the two stitches which are knit together will appear as if tied. *Waistcoat Stitch.*—In the first row alternate stitches must be knit and slipped. In the second one stitch knit; the wool brought forward and one slipped, then the wool passed back and one knit. In the third row one stitch must be slipped and one knit. In the fourth row the wool is brought forward and one stitch slipped, then passed back and one stitch knit.

Herringbone or Shelland Stitch.—Any number of stitches that can be divided by four may be cast on. The wool is passed over, and one stitch slipped; then one stitch is knit and the slip-stitch passed over it; then one stitch is knit the wool brought forward, and one stitch purled. *Raised Stitch.*—Any even number of stitches may be cast on. The first row is knit with a small needle, the wool is brought forward and two stitches knit together; the second row is plain knitting with a large needle; the

third is plain knitting with the small needle, the fourth is purled with the large needle. *A Light Stitch for a Shawl.*—Any even number of stitches may be cast on. The wool is brought forward, and two stitches knit together alternately to the end of the row.

Patterns: Cable

Pattern.—Any number of stitches may be cast on that can be divided by six. First row purled, second plain knitted, third row purled, fourth plain knitted, fifth purled, sixth plain knitted, seventh purled, eighth three stitches are passed on to a third needle, that needle being always kept in front. The three next stitches are knit; the

three stitches are next knit which were passed on to the third needle; then the third needle is again taken, and three more stitches are passed on to it, and the three next are knit as before, and so on to the end of the row. The ninth row is as the first. This pattern is suitable for coverlets, anti-macassars, &c.

Leaf and Trellis Pattern.—Any number of stitches that can be

divided by twenty may be cast on. First row purled; in the second five stitches are knit, then the wool is brought forward and two stitches are knit together. This is repeated three times; then the wool is brought forward, and two stitches are knit together. This is repeated three times; then the wool is brought forward and two stitches are knit; then two are knit together, and ten knit, and the whole repeated, with the exception of knitting the five first stitches. The third row is purled. In the fourth row six stitches are knit; the wool is brought forward, and two stitches are knit together; this is done three times; the wool is then brought forward,

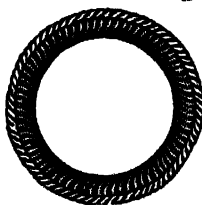


Fig. 1.

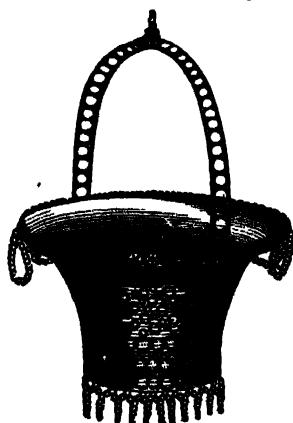


Fig. 6.

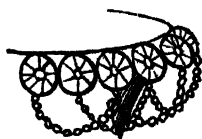


Fig. 3.

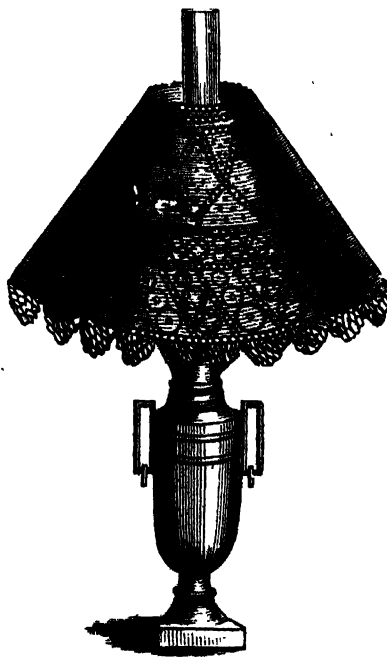


Fig. 4.



and two are knit ; then two are knit together ; then five knit ; then two knit together ; then two knit ; then the wool brought forward and one knit. The whole has to be repeated except knitting the first six stitches. The fifth row is purled. In the sixth row seven stitches are knit ; the wool is brought forward, and two stitches are knit together. This is done three times ; the wool is then brought forward and two stitches are knit ; then two are knit together ; then two are knit ; then the wool brought forward and three knit. This is repeated, with the exception of knitting the first seven. The seventh row is purled. In the eighth row eight stitches are knit ; the wool is brought forward and two knit together. This is done three times ; the wool is brought forward and two knit ; then two are knit together ; then one knit ; then two knit together ; then two knit ; then the wool brought forward and five knit. This has to be repeated, with the exception of knitting the first eight stitches, and the row is finished with two plain stitches. The ninth row is purled. In the tenth row nine stitches are knit ; the wool is brought forward and two knit together. This is done three times ; the wool is brought forward and two knit ; then one is slipped ; then two are knit together, and the slipped-stitch passed over them ; then two knit ; the wool brought forward and seven knit. The whole has to be repeated, with the exception of knitting the first nine stitches, and the row finished by slipping one stitch, knitting two, and passing the slipped-stitch over them. The eleventh row is purled. In the twelfth row five stitches are knit ; two are knit together ; two knit ; the wool brought forward, and two knit together. This is repeated three times ; then the wool is brought forward and one knit ; then the wool brought forward and two knit ; then two knit together, and repeated, except knitting the first five stitches. The thirteenth row is purled. In the fourteenth row four stitches are knit ; two are knit together ; two knit ; the wool brought forward and two knit together. This is repeated three times ; then the wool is brought forward and three knit ; then brought forward and two knit ; then two knit together ; then three knit. The whole is then repeated, with the exception of knitting the first four stitches ; and the row finished by bringing the wool forward, knitting one ; and then knitting two together. The fifteenth row is purled. In the sixteenth row three stitches are knit ; two are knit together ; two are knit ; the wool is brought forward, and two are knit together. This is repeated three times ; then the wool is brought forward and five knit ; then brought forward and two knit ; then two knit together ; then one knit and the whole repeated, with the exception of knitting the first three stitches, and the row finished with two plain stitches. The seventeenth row is purled. In the eighteenth row two stitches are knit, and two knit together ; then two are knit ; the wool brought forward and two knit together. This is done three times ; then the wool is brought forward, and seven are knit ; then the wool is brought forward and two are knit ; then one is slipped and two are knit together, the slipped stitch being passed over them. The whole is repeated, with the exception of knitting, and knitting together the first four stitches, and the row is finished with bringing the wool forward and knitting eight stitches. The nineteenth row is purled. After this the pattern is commenced again from the fourth row. This, though complicated, is one of the prettiest patterns in fancy-knitting, and makes superb curtains or anti-macassars.

Shell Pattern.—Twenty-five stitches must be cast on for each pattern. In the first row, two stitches must be knit together four times over ; then the wool brought forward and one knit eight times ; then two knit together four times, and one stitch purled. The second row is purled ; the third row is knit plain ; the fourth row purled. This pattern is an admirable one for the coverings of

cushions, sofas, or couches ; for babies' jackets, and other small articles.

Gothic Pattern.—Any number of stitches may be cast on that can be divided by ten, and the pattern will be improved by the addition of three extra stitches. Four rows have to be knit plain. In the fifth row, one stitch must be knit, the wool brought forward, and three knit ; one stitch slipped, two knit together, and the slip-stitch passed over them ; then three knit, the wool brought forward, and one knit ; then the wool brought forward and three knit, and the pattern repeated with the exception of the four first stitches. The sixth row must be purled. The fifth and sixth rows are then to be repeated three times, after which the pattern is to be repeated, beginning again with the four rows of plain knitting. This pattern may be used for the same articles as the last.

Fancy knitting in wool may be applied to a great number of ornamental and useful articles, for which the stitches and patterns we have given will be found of service. The most beautiful and delicate of wool knitting is that done in Shetland wool, which is the finest sold. This is admirably adapted for shawls, veils, and children's jackets. For a shawl the following directions will be found good ; large wooden needles should be used.

Shetland Shawl.—Any number of stitches may be cast on that can be divided by six. In the first row the wool is brought forward and one stitch knit, the wool is brought forward and one stitch knit ; then one stitch is slipped ; then two knit together, the slipped stitch being passed over them, and one knit. The second row is purled. In the third row the wool is brought forward and three knit ; then the wool brought forward and one slipped ; then two knit together, the slipped stitch being passed over them. The fourth row is purled. In the fifth row one stitch is knit and one slipped ; then two are knit together, the slipped stitch being passed over them ; next one knit ; then the wool brought forward, one knit, and the wool again brought forward. The sixth row is purled. In the seventh row one stitch is slipped, and two knit together, the slipped stitch being passed over them ; then the wool brought forward, three stitches knit, and the wool again brought forward. The eighth row is purled. The effect of this pattern will be heightened by an edge formed of two extra stitches at the beginning and ending of each row.

Shetland Clouds may be knitted as follows :—Cast on a hundred stitches. In the first row two are knit together four times, the wool brought forward and one knit ; this is done eight times ; then two are knit together four times ; then one purled. The second row is purled. The third row knit plain ; the fourth row purled. Repeat this till a depth of fourteen inches is gained, which will form the border. Then for the centre the wool must be brought forward and one slipped ; then one knit, and the slipped stitch passed over it ; then one knit and one purled. All the rows of the centre will be alike, and the borders on the two ends will resemble each other. The extremities must be drawn together, and finished off with wool tassels.

A quilt or couvre-pied is best knit in fleecy, with large wooden needles. No pattern will be handsomer for this than the "Cable," for which we have given directions above, in stripes of different colours, say scarlet and white. The "Double Diamond" is also a good pattern for the purpose. Directions for this we subjoin.

Couvre-pied, or Quilt.—Any number of stitches may be cast on that can be divided by three, two extra being allowed. The first row is knit plain. In the second one stitch is slipped ; the wool brought forward, and one slipped ; then two knit together, and the pattern repeated with the exception of slipping the first stitch. The last stitch of the row is knit plain. In the third row one stitch is slipped and one knit ; the next is a double stitch (i.e., a stitch and a loop), the stitch is knit and the loop slipped ;

knitting the stitch and the loop is repeated to the end of the row. In the fourth row the pattern is recommenced, as at the second. In each alternate second row a double-stitch will follow the first; this must be knitted without bringing the wool forward. The last stitch must be knit plain in every row.

A *Brioche* is a good kind of cushion to knit, as it may be made up at home, and may be worked in odd wools, and always looks prettily. Its name is derived from its resemblance to a French cake. It should be knitted in fleecy or double German, with moderately large needles of wood or ivory. It may be formed with thirty-two stripes of different colours, radiating from the centre, sixteen wide and sixteen narrow, and these may be arranged according to fancy, varying the colours to suit taste or convenience. Ninety stitches may be cast on, say in black, for the narrow stripe, then two turns must be knit, next three turns in orange and two more turns in black. This completes the first narrow stripe. To knit the wide stripe the wool must be brought forward, two knit together, twice, and turn; these two must be knitted, and two more of the black, and turn; this must be continued, two more stitches of the black being taken each time till within two stitches of the top, then turn; the wool will now be at the wide part of the stripe, and the next narrow stripe must be again begun with the black, the two black stitches being knit at the top or narrow end. It may be well to make these stripes also somewhat narrower at this end, by turning when within two stitches of it in the centre row of orange. The work is thus to be proceeded with till the last wide stripe is finished, when the piece will have attained its circular form, and may be finished by joining it to the first narrow stripe.

For making-up, take a circular piece of stiff millboard, about eight inches in diameter, and cover it with cloth or silk. The top is to be drawn together, and fastened to the board in the centre by a tuft of wool, or a cord and tassels. The stuffing, of down or fine carded wool, should be put in a case, and the knitting sewn down to the edges of the board.

Economical hearth-rugs and bedroom door mats, which are very warm, and handsome in appearance, may be made by knitting shreds of cloth with twine. Tailors' snippings may be used, or old cloth garments, washed and cut into strips of about four inches long, by one-third of an inch wide. These may be arranged according to colour, in any simple pattern, as stripes, crosses, or diamonds; or they look well with merely a border of black, and the centre filled up with colours mixed indiscriminately. Large steel needles and fine twine should be employed. The first row must be knit plain; in the second, one stitch is knit, the strip of cloth is then laid against it by its centre, and another stitch knit; one end of the cloth is then turned back, to bring both ends on the same side, and a third stitch is knit; this is repeated to the end of the row. Then begin again as at the first row.

The principal kinds of wool used in fancy knitting are Shetland, fleecy, single and double German, and Andalusian. Shetland is the finest and most delicate, as well as the most expensive; fleecy is a thicker and somewhat cheaper material, and should be used whenever weight and warmth are required; German wool is best for cushions, anti-macassars, and such-like articles. Whenever, as in children's jackets or shoes, frequent washing is necessary, it is best to use Andalusian, as the colours in that always stand well, and it is not so liable to thicken, though all articles knitted in wool require much care in washing, and should be well shaken and pulled out whilst wet.

Turns.—To cast on is commencing the work, and has been explained in our first article. A turn is to knit two rows in the same stitch, one forwards and one backwards.

A row is composed of the stitches from one end of the needle to the other. To bring the wool forwards—in this, after a stitch has been knit, a second is made by simply bringing the wool to the front. To pass the wool over—in this, after making a purled stitch, a second stitch is made by passing the wool over the needle. To knit two together—in this, as in narrowing, two stitches are taken together and knit into one. To slip is to pass a stitch from one needle to the other without knitting it. A loop stitch in this the wool is brought before the needle, and, in knitting the next stitch, returned to its former place.

When knitting and purling have to be done in the same row, it is obvious that after purling a stitch the wool must be passed back under the needle before the next stitch can be knit; in like manner, after knitting a stitch, the wool must be brought in front, under the needle, before the next stitch can be purled. These processes are, it must be observed, different from passing the wool over and bringing the wool forward, both of which are for the purpose of making stitches. Fastening on is best done by placing the two ends of the wool contrariwise, and knitting a few stitches with both together.

FRUIT DAINTIES.—II.

CHERRIES.

To Preserve Cherries.—Boil them in thick syrup in a pan, and let them remain until next day. Then take them out, and put them in syrup which has been boiled down until it is ready to candy, and colour them with some syrup of red currants. Cherries may also be preserved by another method. Take equal quantities of crushed loaf sugar and ripe cherries, previously stoned. Place some of the sugar at the bottom of the preserving-pan, place the cherries on it, and sprinkle more sugar over them as you place them in it. Then put the pan on the fire, and for each pound of fruit, add half a quarter of a pint of red currant juice, and more of the sugar. Boil them fast over a good fire, frequently shaking the pan, but not stirring it. Skim the contents, and when the syrup has become sufficiently thick, pour the preserved fruit into jelly-pots.

To Preserve Cherries in Bunches.—Select some cherries, and make them into bunches. Then boil them in a syrup, made with an equal weight of sugar, and the smallest possible quantity of water to dissolve it. Take the vessel from the fire and skim it, and let the cherries become cold. Then place them in the syrup into a warm oven, and let them remain until next day. Afterwards take them out and dry them.

Cherry Compost.—Boil some sugar in the smallest possible quantity of water, add the cherries, and simmer them until they become soft, and have absorbed all the syrup. Should there be more syrup than the fruit can absorb, boil it down, and pour it over the cherries.

Candied Cherries.—Select some fine cherries, and place them in strong syrup, boiled down until ready to candy. When covered with sugar, take them out, and place them in a warm oven to dry.

Dried Cherries.—Remove the stones, and place the fruit in an oven very moderately heated. Let them remain in it until the oven is cold, and, if necessary, repeat the process.

Cherry Brandy.—To a gallon of brandy add eight pounds of black cherries, two drachms each of cloves and mace, together with a handful of mint, balm, and clove gilliflowers. Let them remain in the spirit for twenty-four hours, then remove the fruit, crush, and replace the cherries in the brandy. Now let them remain for a few weeks, then strain the spirit and sweeten it for use.

Cherry Drink.—Remove the stones from a handful of ripe cherries, bruise them, and let them steep in a pint of water. Let them stand for some hours, then strain, and sweeten with two ounces of loaf sugar.

RASPBERRIES.

Raspberry Ratafia.—Brandy may be flavoured with raspberries by placing the fruit in a large jar, crushing it, pouring the brandy over it, and letting it macerate for a month, and then straining off the clear liquor.

Raspberry Ratafia may also be prepared by the addition of the juice of raspberries to the brandy.

Raspberry Jelly.—Put some ripe raspberries in a pan over the fire, until the fruit yields all the juice it contains, and strain it through a cloth. Then add the same quantity of sugar as that of the fruit used, and simmer them together into a jelly.

Raspberry Drops.—Boil a pound of lump-sugar with a little water until it is ready to candy, then add the same weight of raspberries, previously bruised. Mix them well together, then drop them on plates, and dry the drops in a warm place. If it is wished, the seeds may be removed from the raspberries by straining them.

Raspberry and Currant Marmalade.—Pick some very ripe red currants, and some raspberries, soak them in boiling water until they break, and drain them. When cold, pass the fruit through a sieve to separate the seeds, and then boil them down with an equal weight of loaf-sugar.

Raspberry Drink.—Bruise some picked raspberries in water, to which a sufficient quantity of sugar has been carefully added. Then strain the raspberries through a cloth, which should be squeezed strongly to express as much of the juice from the fruit as possible.

BARBERRIES.

Barberry Jelly.—Make three pounds of sugar into a strong syrup, and boil the same quantity of barberries in it until scum ceases to rise. Then strain the jelly through a sieve, boil it again, and pour it into pots.

Barberry Syrup.—Boil some pickled barberries until they are reduced to a pulp. Strain the clear juice, and boil into syrup, with at least an equal weight of loaf-sugar.

Pickled Barberries.—Pick a quantity of barberries, and scald them in boiling water for about ten minutes. Then put them in jars, and pour over them equal parts of white wine and vinegar, which should be made warm for the purpose, and not too hot.

Another Way to Pickle Barberries.—Boil some salt in white wine vinegar until the pickle is sufficiently dense to bear an egg placed in it, without allowing it to fall to the bottom of the vessel. When the vinegar has boiled for half an hour, strain it into an earthenware jar. As soon as the liquid is cold, put into it the barberries, selecting those that are most red, that the pickle may have a better colour. Add half a pound of moist sugar and more vinegar, if required, and carefully secure the mouth of the jar.

Pickled Barberries prepared in a similar manner to Sour-kraut.—Steep the barberries for a few hours in salt water. Then remove the fruit, add more salt, make the water boil, and add some sliced ginger. Now allow it to cool, and having poured it into a jar, put the barberries in it, and keep them pressed down beneath the surface of the liquor by a round perforated board, on which a heavy stone is placed. Then put the lid on the jar, and keep in a cool place for use.

To Candy Barberries.—Take some preserved barberries, wash away some of the syrup with warm water, and cover them with finely-powdered loaf-sugar. Then place them on plates, and dry in a moderately heated oven. Care must be taken, while drying, to turn them frequently, and to sprinkle them often with sugar.

To Preserve Barberries.—Having gathered the barberries on a dry day, stone them, and put them on a dish. Then take four and a half pounds of powdered loaf-sugar, for

every two pounds of fruit, and throw some of it over the barberries. Boil the remainder of the sugar with water into a strong syrup, and add the barberries. Make the fruit boil as quickly as possible to preserve its colour, and pass it into the jars in which it is to be kept.

Another Method of Preserving Barberries.—Stone the fruit, and powder twice its weight of loaf-sugar. Lay some of the sugar on the bottom of an earthen pan, and on that another layer of fruit. Continue to do this until all the fruit and sugar are used.

Barberries Preserved with Wine.—Boil some barberries in a quart of claret until they are tender. Then add an equal quantity of water, and six pounds of loaf-sugar, and boil them to the consistency of thick syrup. Scald the remainder of the barberries with hot water, and preserve them in this syrup.

APPLES.

To Preserve Apples for the Winter.—When it is wished to preserve apples during the winter they should be allowed to remain on the trees until perfectly ripe. They should be collected in fine dry weather, and placed in heaps for five or six weeks to dry as much as possible. The apples should then be carefully wiped, and all those which appear unsound in the slightest degree removed. The rest are then to be packed in large jars or boxes, and care should be taken while doing this that the fruit is not bruised or injured in any way. The jars or boxes should then be closed, and made secure so as to exclude the air as much as possible, by which they will be kept plump and sound, and retain their flavour.

Apple Paste.—Scald some apples until they become soft, and let them drain. Pass the pulp through a sieve, and boil it down over a gentle fire, taking care to stir it continually to prevent it burning. Then remove the pan from the fire, and mix syrup with it, containing as many pounds of sugar as there are pounds of fruit. Simmer the whole over a gentle fire, and make it into shape in moulds, and dry the paste in a warm place.

Another Method of Making Apple Paste.—Take some apples, peel and core them. Then put in cold water, boil them and let them drain. Pass the pulp through a strainer and boil over the fire to a proper consistence, and mix with a pound of crushed loaf-sugar for each pound of apples.

Apple Sweetmeat.—Pare some apples, and cut them into various shapes, place in glasses and pour some apple jelly over them. Let them remain for a week, and add a quarter of a pound of sugar to each pound of jelly, and season with lemon-juice.

Apple Marmalade.—Simmer some apples in water until they become tender, then let them drain. Afterwards strain them through a sieve, and boil them with a strong syrup containing three-quarters of a pound of sugar to each pound of fruit. Mix the whole well together, and preserve it in pots or glasses.

Apple Cream.—Peel some apples, remove the cores, and cut them in thin slices. Put them into a saucepan with crushed sugar, sliced lemon-peel, and ground ginger, with a little red wine. Let them simmer until they become tender, put them in a dish, and allow them to cool. Then boil a quart of cream with some nutmeg, and add the apples to it, with a sufficient quantity of sugar to sweeten it.

Apple Tansy.—Pare some apples, cut them into thin round slices, and fry them in butter. Then beat up half a dozen eggs in a quart of cream, and pour them upon the apples.

Apple Pancakes.—Cut some peeled apples into round slices, and fry them in butter. Then beat up twenty eggs in a quart of cream, with two drachms each of cinnamon, nutmeg, and ginger, and six ounces of crushed lump-sugar, and pour it over the apples.

Apple Pulp.—Prepare some apple marmalade, and mix with it the yolks of five eggs, a handful of bread grated, and some butter; and also some stewed pears, or cherries if thought proper. Make the paste into shape, and bake in a slow oven.

QUINCES.

Quince Jelly.—Add to a quart of quince juice a pound of loaf-sugar, and boil it until it candies. Then boil it again with a pint of white wine in which an ounce of gum arabic has been dissolved, and pour it into pots or glasses. When cold it will set to a solid jelly.

Quince Cakes.—Peel half a dozen quinces, and remove the cores, then boil them in a pint of the syrup of quinces, and the same quantity of syrup of barberries, until they become reduced to pulp, which is then to be strained through a coarse sieve. To this pulp add three spoonfuls of loaf-sugar, and boil it down until it is ready to candy. Now make the pulp into cakes, and dry them on tin plates in a cool oven.

To Keep Quinces through the Year.—Cut some quinces into small pieces, and boil them in a quart of water, to which one spoonful of salt and the same quantity of honey have been added, until the water tastes strongly of quinces, and add a quart of white wine vinegar. Now take the quinces it is wished to preserve, lay them at the bottom of an earthenware jar, and pour the above liquor over them, and secure the mouth of the vessel as closely as possible.

Another Way to Preserve Quinces is to soak them before they are quite ripe, in salt and water for twenty-four hours. Then take them out, and dip them into a hot pickle of white wine vinegar, salt, mace, cloves, and bay-leaves boiled together, and then preserve them in a stone jar, covered with vinegar.

Quince Cream.—Roast some ripe quinces, remove the cores, and cut them in thin slices. Boil them in a pint of cream with ginger, and then strain and flavour with loaf-sugar.

GARDENING.—LII.

GARDEN IMPLEMENTS—LAWN MOWERS.

IN order that lawns may present that close, fine, and velvety appearance in their grass which is most beautiful to the eye and pleasant to tread upon, it is necessary that they should be mown evenly and regularly. If at any period of the year the grass be left unmown for too great a length of time, or if the first mowing be delayed too long in the spring; or, still more, if cutting be discontinued too early in the autumn, the stronger and coarser kinds of grass will overpower and kill the weaker and finer varieties. Consequently, a lawn which has been neglected will require constant care for a considerable length of time before it recovers its original beauty, and, indeed, sometimes it will never be able to regain it.

The old-fashioned method of mowing by the scythe is attended with various disadvantages. The use of it for so delicate an operation as mowing lawns requires considerable skill, for it is not easy to shave the whole surface closely without leaving unsightly ridges or occasionally cutting off portions of the turf, nor, except where a gardener is regularly employed, is it always possible to procure the services of a qualified person at the precise time when it is necessary that the lawn should be mowed. The introduction of machine-mowers has, therefore, been attended with very great advantages, and has generally been received with favour by the public; as they can be used by any person, they enable lawns to be mown with far greater regularity than formerly, and the benefit of

this is seen in the great improvement which invariably takes place in a lawn when the machine-mower is brought into use. Often the use of this instrument, when it is a small one, forms an agreeable exercise for the members of a family, and thus all expense in lawn-mowing is avoided; whilst, in extensive gardens, it is estimated that a machine of the largest size will save the labour of ten men.

When these machines were first brought before the public, the cleanly manner in which they removed the whole of the grass cut by them was looked upon as a great advantage. Since that time, however, it has been questioned, and with some show of reason, whether depriving the turf of the whole of the crop produced by it was desirable. So doing, must, it is certain, tend to impoverish the soil, and it is to poverty that a serious defect in some old lawns, that of becoming mossy, is to be attributed. Some of the lawn-mowers, as now made, cut up the grass finely, and leave it scattered over the ground; this system of mowing is, however, one which is not successful unless the mowing be done very frequently and regularly.

A great number of machines, slightly differing in some minor details, are at present before the public. In principle, and general construction, they are, however, much alike. An iron roller, which bears the principal part of the weight of the instrument, is connected by cog-wheels, a chain, or band, to a revolving frame fitted with knives, to which it gives motion; and these knives, working against a projecting ledger or edge of metal, cut the grass. In those machines which collect, an iron box or tray is fixed in front of the knife-frame, to receive the cut grass when flung up by the knives. There are also, generally, rollers in front of the knife-frame, which serve to guide the machine, and also to press down the grass into that position in which it can be most easily severed by the knives.

It would be impossible to state dogmatically at what intervals a lawn should be mown, as this must much depend upon the season, the state of the weather, and the rapidity with which the grass grows. It is, however, always desirable to begin mowing before the grass has attained undue length in the spring, and during the summer to cut it as frequently as possible; a week is the extreme period during which it should be left throughout the grass-growing months, and, to keep the lawn in really fine order, it should be mown much oftener. With the machine-mower the labour of going over a lawn on which the grass is short is very slight, and the roller attached to the machine will then be generally sufficient to keep down worm and ant hills. In those cases where worms are so numerous as to become a nuisance, they may be destroyed by sprinkling the plot, through the rose of a watering-pot, with water into which, on the previous day, hot quick-lime has been thrown, in the proportion of six or eight pounds to the hogshead; it is, however, doubtful whether worms are not frequently as beneficial as hurtful by rendering the ground porous, and admitting air to the roots of the grasses. Where such weeds as plantain, or ribbed grass exist, they should be carefully rooted out, as they will destroy all the finer grasses near them. Moss, which results from poverty of the soil, is best destroyed by enriching it with top-dressings, such as guano, soot, fine compost, lime, &c., applied early in the spring, and well brushed in. Treating the lawn in this manner, and using a collecting mower, is, in the opinion of some persons, preferable to the practice of scattering the grass; but the latter mode certainly affords nourishment to the grass.

In early spring, the first cutting is generally best performed with the scythe, as the grass will then be unequal in length, and not well suited to be operated upon by the machine-mower; the scythe should also be used whenever the grass is more than an inch and a half long. A day or two previous to the first mowing, it is also desirable that

the lawn should be well rolled; for all other mowings the machine should be used; and, before employing it, all stones, sticks, or other substances which might injure the knives, should be removed. The scythe works best in the early morning, while the grass is wet with dew, but the reverse is the case with the machine-mower, which can generally only be employed when the plot is quite dry—in wet grass it is apt to clog. The machines work best if propelled at a rather quick step, a slow motion impeding both the cutting and the delivery. The machine should be so set that the knives, and the ledger-blade against which they act, may be kept just clear of the ground, and the revolving knives should be so adjusted as to press lightly against the fixed ledger. Care should always be taken that the different bearings are sufficiently, but not immoderately, supplied with oil. Sperm or olive oil is the best; bad oil is highly prejudicial to machinery. In most of the machines provision is made for sharpening the knives; in the "Automaton," this is accomplished by the blade being partly of steel and partly of iron, the iron being softest wears most rapidly, and thus leaves the steel edge sharp; in others, as in the "Silens Messor," and that of Messrs. Shanks and Son, the blade is of steel on both sides, with soft iron between; and when, through use, one side has become more worn than the other, the original cutting power is restored by simply reversing the knife-barrel. When the machine is being removed from its work, or from place to place, the handles should be depressed so as to throw the whole weight upon the drum, and to elevate the knives, and thus to keep them from the ground, and out of the reach of injury. In moving it when not in use, it is also better to draw it backwards. After being used, it should be carefully cleaned, especially any grass, &c., should be removed which may have become twisted round the spindles, and a brush will be found convenient to remove grass and other matters from the knives. It should be well oiled if not required to be speedily used again, and stored in a place where it may not be exposed to damp or dust. If properly cared for, a mower will last and do good service for many years, while one improperly treated will scarcely continue in working order for a corresponding number of months.

SPICES.

CLOVES.

CLOVES are thus named from the French word *clou*, a nail, the shape of which they are thought to resemble. They are obtained from the *Caryophyllus aromaticus*, or clove-tree (a native of the Moluccas), of which they are the undeveloped flower. The pointed portion of the clove consists of the tubular calyx, while the nail-like head is formed of the unopened petals of the bud.

Each tree usually yields about five or six pounds of cloves, although, when great care has been taken in cultivating a tree, as much as twenty pounds have been obtained. They are generally gathered as soon as they become red, which happens between October and December. If they are allowed to remain on the tree after that time, they expand, and are then known as "mother cloves," which are of diminished value, as they are then only used for confectionery and for seeds.

As soon as the cloves are gathered, they are exposed to the smoke from a wood fire, to darken them, and then are usually dried in the sun. Sometimes they are thrown into hot water before smoking them, but this is not the usual practice, as it injures their quality, and renders them soft, wrinkled, and of a dirty, pale colour. The clove-tree is cultivated in the East and West Indies, and much of that imported into this country comes from the Dutch settlements. The best kinds are sent over in boxes, while the inferior qualities are in bags. Amboyna cloves are con-

sidered the most valuable, especially that kind known as "royal cloves," from the good qualities they possess. These are smaller and blacker than the other varieties.

In selecting cloves for household use, those only should be chosen that are well formed, perfect, plump, heavy, and not too small. They should also be of a pitch-brown colour externally, but reddish brown inside. When exposed to violence they should be brittle, but not crumble in pieces. They should have a powerful and agreeable aromatic odour, and possess a very strong taste, somewhat acrid, which should remain on the tongue for a considerable period. When pressed between the fingers the skin should feel oily, from the essential oil the cloves exude when pressed. But all cloves that look pale and shrivelled, and possess but little smell and taste, should be rejected. So also should those that feel too light, or that have the knobs or other portions broken off.

Cloves from which the essential oil has been previously removed are often mixed with the good ones, but they may be distinguished by their diminished colour, taste, and odour, and by the knobs of the cloves being absent. In purchasing cloves care should be taken to select those that feel perfectly dry, since to make cloves heavier they are sometimes placed beside a vessel of water, the vapour from which they readily absorb, and thus increase considerably in weight. Cloves contain a large quantity of a volatile essential oil, which varies in quantity from seventeen to twenty-two per cent., and to the presence of which they owe their peculiar properties. When distilled with water this essential oil is obtained, the amount being usually one-sixth of the weight of the cloves. Oil of cloves possesses a deep red colour, a powerful clove-like smell, and an aromatic and acrid taste. It is very stimulating, and in doses of two drops acts as a stomachic. The oil of cloves is employed when dissolved in rectified spirits of wine, as a flavouring essence for the kitchen. It is also used occasionally to conceal the taste of certain medicines, such as black draught. The oil of cloves is sometimes adulterated with olive oil, and other light oils. But the adulteration is very easily detected, for when poured into water, the light olive oil floats on the surface, while the heavy oil of cloves sinks to the bottom of the vessel containing it.

CASSIA.

Cassia, owing to its cheapness, is much employed for flavouring, instead of cinnamon. It is the dried bark of the tree known as the *Cinnamomum cassia*, a native of China, but cultivated in many other places. Cassia is largely imported from Bombay, Calcutta, Singapore, and Manilla. Owing to its great resemblance in taste and smell, cassia is generally ground with cinnamon to adulterate that article. Its flavour is, however, more pungent, and less sweet and agreeable than cinnamon, and when chewed it feels slimy, and is followed by a bitter taste. Its odour is also much fainter than that of cinnamon, although it greatly resembles it. Cassia contains a considerable quantity of starch granules in its composition, which is not the case with cinnamon. Owing to this, when powdered cinnamon is mixed with this substance, the adulteration may be at once detected by the microscope, as by adding tincture of iodine to the cold infusion, a blue compound of starch and iodine is immediately formed. Cassia is met with in pieces thicker than cinnamon, and possessing a redder tint. It is also more brittle, and when bent, breaks off sharp without splintering.

Cassia, like cinnamon, is a cordial stimulant, and is often employed instead of it, to flavour medicines, and render their taste more agreeable. It is used to flavour chocolate, and owes its peculiar properties to the essential oil it contains, which may be extracted by distilling twelve ounces of oil of cassia being obtained from one hundred pounds of bark. It is of a pale, golden

yellow tint, and from its comparative cheapness is employed to adulterate cinnamon oil, which it greatly resembles both in its scent and flavour.

Oil of cassia, when dissolved in rectified spirits of wine, forms the essence of cassia, frequently employed in flavouring articles of confectionery.

DOMESTIC MEDICINE.—LIV.

• STYES (*Hordeolum*).

THIS is a slight complaint, but not on this account altogether to be disregarded. It consists in the formation of small pustules or boils on the edges of the eyelids. Sometimes there is an isolated one, but more frequently they occur in a certain succession. They begin with a little redness and irritation or itching on the edge of the lid. Next at this spot is seen a little pimple the size of a pin's head or a small pea. Gradually, and sometimes very slowly, this enlarges and inflames. The inflammation may be limited to the spot itself, or it may give an ugly swollen appearance to the whole lid. The styte may be very painful, hot, hard, and acute, or it may be slow and soft, and almost painless.

Causes.—Occasionally styes happen when there seems to be nothing wrong in the system, but more frequently they indicate that the system is rather below *par*; in other words, that it is weak. They do not occur in all people alike, but in some people much more frequently than in others. Perhaps they are more common in women and children than in men, and in those who have a fair thin skin than in others; and in these subjects they readily occur in connection with any temporary debility, or with cold. Some delicate and fine-fibred children are very much troubled with them. One of the most frequent causes of a bad series or succession of styes is to be found in the eruptive diseases, such as measles, scarlet fever, chicken-pox, small-pox, &c.; and even vaccination itself is not free from this tendency of eruptive diseases to throw out a few little hot spots or boils which occasionally take the form of styes. It would be marvellous if so advantageous and slight a disease as vaccination had not some small disadvantage. Small-pox is especially apt to leave behind it a legacy of boils, ulcers, eruptions, and styes. These diseases cause eruptions and styes probably partly by rendering the blood impure, and partly by weakening the skin and the blood-vessels of it, taking the tone out of them by excessive dilatation.

Treatment.—An occasional styte may be treated in a domestic way. At the very beginning it should be bathed with a little weak brandy and water. If this does not arrest it, and it becomes painful and hard, a little poppy fomentation should be used three or four times a day. Poultices should not be used unless to an unusually hard and large styte. They tend to induce other styes by relaxing and softening the skin too much. Weak eyes, with red edges, and a tendency to styes, are often greatly strengthened by a little golden ointment, the size of a pin's head or a small pea, being brushed along the edge of the lid at nights. The internal medicine most useful in cases of styte varies much with the particular case, and where the habit is very troublesome a doctor should be consulted. Perhaps the most useful remedy, speaking generally, is quinine, given in something like the following form:—

Sulphate of quinine	12 grains.
Tincture of perchloride of iron ...	1 drachm.
Simple syrup	1 ounce.
Distilled water to 6 ounces.	Mix.

One dessert-spoonful, or a table-spoonful, to be taken three times a day in water. A young child may take two teaspoonfuls three times a day.

HOUSEHOLD AMUSEMENTS.—XXXIX.

PHOTOGRAPHY (*continued*).

LEAVING the lens and subject we must now pass to the chemical portion of the operation, and we will first describe the time-honoured collodion process.

Cleaning the Plate.—Selecting a plate from our stock, according to the rules already given (see page 153), our first business will be to clean it, an operation of a simple nature, but one nevertheless of great and serious importance; more complicated difficulties and failures arising from ill-cleaned plates than from perhaps any other cause. The method we ourselves prefer to use stands as follows:—

First wash the plates under the tap *thoroughly*, and dry them on a cloth kept expressly for that purpose, which should be washed without soap. Having done this, let them soak for some hours in dilute nitric acid (one part of acid in five of water), followed after further rinsing by a solution of caustic potash or soda in methylated alcohol, applied to both sides with a tuft of cotton wool. They may then be again well washed and dried. When required for use take a soft clean piece of chamois leather, kept expressly for the purpose, and with it give the plate a rubbing, until it appears clean and polished. To test whether a plate is really clean or not, breathe gently on its surface. If the breath spreads evenly over it, unbroken by any mark or spot, and evaporates in the same way, the plate may be regarded as clean. In the place of the caustic alkali solution, you may use a few drops of old collodion, or a mixture of tripoli and methylated spirit, mixed to about the consistency of cream. When cleaned, the plates should be shut up, free from dust or the possibility of being accidentally soiled, in a plate box (see Fig. 10, page 153). Avoid, as much as is possible, touching the plate with the bare hand or fingers.

Coating the Plate.—Take a clean plate from the box, touching it as slightly as possible, and having ascertained by breathing upon it that it is quite clean, brush a flat camel-hair brush lightly, and not too quickly, across the surface, to free it from any chance particles of dust. Remove the cork from the collodion bottle, and see that there is no dirt or dust about its lip. Take the plate at the corner marked A in Fig. 1; pour the collodion on the middle of the plate until you have a pool sufficient to flow over the whole surface; you will find very little is sufficient. Gradually incline the plate until it flows down to D, then tilt it so that it may flow from D to A, where it is held by the thumb, which it must not touch, and again so that it may flow from A to B; lastly, let the plate tilt so that the flow is from B to C, where any excess may be drained off back into the bottle, on the mouth of which that corner of the plate should rest. While it is in this position, rock it gently to and fro, to prevent the formation of ridges. Perform this process leisurely and carefully with a steady hand, and in a place free from dust. Should any collodion run over to the back of the plate, wipe it off with a clean linen cloth kept for the purpose. When the collodion has set in a smooth, even, glossy film, sufficiently dry to bear on the lower corner a slight touch of the finger without sticking to it, we may proceed to render it chemically sensitive.

Fig. 1.

Sensitising the Plate.—We must now shut the dark room door. We have already spoken of the nitrate of silver with which the sensitising bath is made, and of the vessel in which it is held, and we must now tell you

how the bath solution is made. Procure a perfectly clean stoppered bottle; fill the vessel called a "bath" (see Fig. 7, page 153) which must also be perfectly clean, with distilled water, which you can procure from any chemist, and pour this into the bottle. Supposing your bath holds twenty ounces of water, you must add to it 700 grains of the nitrate of silver, and agitate it until the silver is all dissolved. Now filter it back into the bath through a perfectly clean piece of blotting-paper; that called Swedish filtering-paper, sold for this purpose by all photographic dealers, is best; add one drop of pure nitric acid, and place it in your dark room, carefully covering it to exclude dust. Before using the bath it is best to coat a plate with collodion according to the above directions; place it on the dipper, and, lowering it into the bath, allow it to remain there five or six hours. The silver bath having been prepared, the plate cleaned and coated, and the subject focussed, we must next render our surface of collodion sensitive to the action of that light which, passing through the lens, forms an image of the bust on our focussing screen. To do this, we raise the dipper from the silver bath until we can carefully place our plate upon it in the position shown in Fig. 7, page 153. Then with one slow, continuous, steady action we lower the plate into the bath solution, and cover it from light and dust. After the plate has been there about forty seconds, it should be moved up and down several times. In about two or three minutes, according to temperature, the plate will be ready for the dark slide (see Fig. 2, page 152), but you will know this more surely by the entire absence of those oily streaks and lines which appear when a plate is first immersed in the bath, and by the films assuming a smooth, creamy appearance. If any pauses have been made in the dipping process, at each such pause a line will have been formed across the plate. If the plate is put into the bath too soon, streaks and markings will be discovered, and if it has been kept out of the bath too long the plate will have become insensitive. While the plate is in the bath you should get the dark slide ready for its reception, putting little pieces of clean blotting-paper at each of the lower corners of the plate carrier, seeing also to its freedom from the photographer's most troublesome enemy—dust.

FRUIT DAINTIES.—III.

PLUMS.

To Preserve Plums.—Cut the fruit in two, and take out the kernels. Then put the plums in a preserving-pan, and simmer them for some time over a gentle fire, stirring them continually. Allow them to cool, and drain them in a sieve. In the meantime, take as many pounds of sugar as you have of fruit, and boil it into strong syrup with a little water. Then put the plums into the syrup, and boil them in a covered vessel. Pour them into jars, and let them stand all night in an oven. When cold, drain them, place them on plates, and dry them in a warm place.

Another Way to Preserve Plums.—Put the plums in an equal quantity of syrup. Boil them for a short time, and then let them remain until the juice has escaped from the fruit. Again boil them, put them into earthen pans, and let them remain undisturbed until next day. Then drain them, and dry them on plates.

Quiddany of Plums.—Boil a pound of plums from which the stones have been removed, with the same quantity of loaf-sugar, in a quart of plum-juice. Boil them together until they become of the consistence of jelly, and pour it into the pots in which it is to be preserved.

To Pickle Plums like Olives.—Boil together some dill and fennel seed, in a mixture of white wine vinegar and

water. Put the plums into it while hot, simmer them a little, let them stand till cold, and preserve in pots.

To Pickle Plum Buds.—Put the buds into hot salt and water, and simmer them until soft, taking care, however, not to boil them too much. Then strain the water from them, and let them become cold in a jar. Now boil some white wine vinegar with mace and white pepper, and pour it over them. Let them remain in the pickle for eight or nine days. Afterwards boil them in the vinegar until they turn green, and put them in pots.

Plum Marmalade.—Simmer the plums in water until they become soft, and then strain them, and pass the pulp through a sieve. Put in a pan over a slow fire, together with an equal quantity of powdered loaf-sugar; mix the whole well together, and let it simmer for some time until it becomes of the proper consistence. Then pour it into jelly-pots, and cover the surface with powdered loaf-sugar.

Plum Paste Sweetmeats.—Simmer the plums in a pan over a moderate fire, strain the juice from them, and dry the pulp. Then mix it with strong syrup, and simmer the whole together. Make the paste into different shapes by hand or in tin moulds, and dry them on plates in a slow oven.

An Easy Way to Preserve Plums for Pies and Tarts.—Gather the fruit on a dry day, wipe each one separately on a soft cloth, and put them to dry on sieves, or in a net. Then put them in a moderately heated oven for a short time. Take them out, turn them, and put them in again until dry. The dry plums should then be kept in a warm place in paper bags perforated with a number of holes.

Another Way.—Cover the plums with flour, to prevent adhering together, and place them in a warm oven, where they should remain all night. Then put them on a sieve, and turn them every day until perfectly dry.

To Dry Plums.—Slit the plums down the middle, remove the stones, and put them into syrup prepared with half the weight of sugar. Simmer the fruit in the syrup, taking care that it does not boil until the fruit is soft. Great attention must be paid while doing this, that the plums are kept completely covered with syrup; otherwise the colour of the fruit will be injured. When the fruit is tender, take the preserving pan off the fire, and let stand for a day in the syrup; then prepare a syrup with as many pounds of sugar as that of the fruit which has been used, and boil it down until it is ready to candy; let it get cold. Then remove the plums from the weak syrup, and put them into this, taking care that the fruit is completely covered, and simmer them for a short time. Then let the plums remain at rest for three days, take them and dry them on plates, frequently turning them. If green plums are prepared in this way, they must be first rubbed with salt, and scalded in the manner directed for green apricots.

TO MAKE A GALLON OF ELDERBERRY AND DAMSON WINE.—Put half a gallon of elderberries and a pint of damsons in a pan. Pour six pints of water over them, and let them boil for half an hour. While the fruit is being boiled, it should be bruised with a stick, and frequently stirred. Then pour off the clear liquid, and squeeze the fruit in a coarse cloth. Now add to the strained liquor three pounds of moist sugar, two ounces of bruised allspice, the same weight of sliced ginger, tied closely in a bag, and half the quantity of hops, and boil the whole for one hour, and pour it into a large pan. When cold, mix with it a teacupful of yeast, and cover it over. At the end of two days, skim off the yeast, and pour the wine into a barrel. In about a fortnight after, or as soon as the hissing sound produced by the fermentation has ceased, cover the bung-hole with brown paper, pasted over it, and let it remain at rest for about eight weeks, when it will be ready for use.

HOUSEHOLD AMUSEMENTS.—XL

• PHOTOGRAPHY (continued from page 240).

WHEN the plate has been taken from the dipper it should be drained on a piece of blotting-paper, and then placed carefully on the carrier of the dark slide. Each dark slide, very probably, contains carriers for several plates of different sizes; and a piece of clean blotting-paper having been placed at the back, the door is closed, fastened, and your plate is ready for the camera.

Exposure of the Plate.—All this time our friend—the subject—has been patiently awaiting our return. We now approach the camera, carefully remove the focussing screen, putting it aside in some safe place, and gently lower the dark slide into the grooves it occupied. This done, we pause a moment and then lightly steadying the camera with one hand, with the other we slowly raise the shutter of the dark slide, B (see Fig. 2, page 152). This done, the plate is uncovered, and on removing the cap of our lens, taking care not to shake the camera, the exposure commences. The time required to obtain a complete impression of the image, such as can be developed into a perfect photograph, varies with so many circumstances that no rules can belaid down for its regulation. The best plan is to acquire the knowledge afforded by a few experiments. To enable you to form some opinion, we may point out, supposing the light to be good, your plate to be $4\frac{1}{2} \times 3\frac{1}{2}$ in size, and fairly sensitive, your lens a good single combination (say of six inches' focus), and that you use a stop or diaphragm with a quarter-inch aperture, the exposure will range between twenty and thirty seconds. The stop or diaphragm is used to diminish the aperture of the lens and increase the sharpness of the image, but as the aperture grows smaller, the difficulty of focussing increases, and the exposure is proportionately lengthened. The exposure will be lengthened by using stops, a quarter-inch diaphragm rendering necessary an exposure four times longer than that required with an aperture of half an inch. When compound lenses are used, far more rapid exposures can be given; but these instruments, usually called portrait lenses, are more expensive. In Figs. 6 and 7, on page 153, we give engravings of these two kinds of lenses, namely, the single and the double combinations.

* 87—N.S.

The time you have decided on for the exposure of your plate having expired, you cover the lens and steadily close the dark slide, lifting the hinged shutter and quietly pushing it down. The slide is then removed and taken into your dark room or tent. It will be as well to replace the focussing screen in the camera, as you thus avoid a chance of getting it broken. This done, and having assured yourself that all white light is excluded, the plate is carefully removed from the slide by means of the door, and you commence the next stage of progress, viz., the—

Development.—On looking at the collodion film, you

will observe that the exposure has effected no perceptible alteration in it; the image is there, nevertheless, and only requires development by a prolongation of the chemical action commenced by the light which formed the image. For this purpose we require a solution—which should have been previously prepared—technically known as the “developer.” This is made in the following way:—Take 120 grains of protosulphate of iron (see page 165), put these into a clean bottle containing eight ounces of distilled water; shake until the iron is dissolved, add two drachms of glacial acetic acid, and afterwards about four drachms of alcohol. Enough of this solution having been poured into one of your glass



ILLUSTRATION OF A WELL-LIGHTED PORTRAIT.

measures—say about a drachm—you take the plate by one corner just as you did when coating it with collodion (see page 239), and, holding it over the sink or pan, you gently pour on enough to cover the plate, from the corner farthest from your thumb, and with a slight sweeping motion, at the same time slightly tilting the plate, so that it may be quickly and evenly covered, but without allowing any of the solution to run off. Keep it flowing gently and slowly backward and forward from left to right, until bit by bit the image gradually becomes visible, the white parts, or highest “lights”—places where the light was strongest on the object—first, and the shadows last. Now watch the darkest parts, and when you find that the details—say the folds in drapery, or the gradations of shadow in flesh—are visible, wash off the developer at once with clean water. Let a drop of the bath solution fall off the dipper into the developer, if the first application does not bring out the image. You have now what is called a negative, that is to say, an image faintly visible by reflected light, but more distinct when held up between your eye and

the window, so as to be seen by transmitted light. From this negative we can print as many proofs of the subject as we require by another process to be presently described. But in order that such prints when made may be clear, distinct, and right, the negative must possess a certain degree of opacity in the "high lights," and a certain relative degree of transparency in the deepest shadows. To secure these conditions the process of development is usually followed up by what is called the—

Intensifying.—The solution we use for this purpose is one consisting of five ounces of distilled water, holding in solution ten grains of pyrogallic acid and five grains of citric acid (see page 165). Pour a little of this into your measure, and, taking the dipper from the bath, allow a few drops—say from five to ten—of the silver, or bath solution, to fall into it. Pour this mixture over the plate, tilting it back into the measure, and repeating the operation until those parts of the negative which are seen as light by reflected light are, by transmitted light, dark or semi-opaque. If the intensifying solution should become black and turbid, or muddy, as it will sometimes do under unfavourable circumstances of exposure or sensitivity, throw it away and use some fresh. If the shadows are wanting in transparency, greater density must be obtained in the lights than would otherwise be required. When the high lights are sufficiently dense the negative must be again well washed in clean water, and you will proceed to the next process, that of—

Fixing the Image.—The solution we recommend for this purpose is one of hyposulphite of soda—say about ten ounces, in the same quantity of ordinary water. This may be dissolved in a spouted jug, and used from the same. In this case it is as well to place the plate in a dish, and our the solution over it. When the yellow-looking deposit thinly covering the image—iodide of silver—is quite cleared off, and the shadows show clear and transparent, the process of fixing is complete, and after again washing it with a copious supply of clean water, the negative may be taken out into the daylight and examined.

As an example of a well-lighted head suitable for photographing, and illustrative of our previous remarks, our readers may take the portrait of Sir David Wilkie on page 241, drawn from a painting in the national collection. Here the light is sufficiently strong to throw enough reflected light into the shadows, while it also falls at an angle which distinctly expresses the actual form of the face, upon which the difference between a vague general likeness and a more forcible and striking one commonly depends.

It may not be inappropriate here to offer a few words of advice to the amateur. The most important essential in connection with successful photography is the necessity for *absolute cleanliness* in all things. Good work is practically impossible by slovenly workers. All cloths, measures, glasses, plates, baths, solutions, and in fact everything used in photography, including the fingers, must be kept scrupulously clean. The greatest care should be taken to keep solutions from getting splashed into each other or mixed in any way, or some startling results would probably be produced. For instance, should a drop of the developing solution by any chance get into the bath, the silver would be precipitated and the whole rendered useless. Method and order are almost as necessary as cleanliness.

WINTER CHEESE-CAKES.—To make the paste, mix up a pound of flour with some milk, roll it with three-quarters of a pound of butter, and make it stiff with two eggs. The curd is made by beating up five eggs in a pint of cream, and mixing with it a little grated biscuit.

COOKERY.—LXXXIV.

FRENCH DISHES, ETC. (continued from p. 234).

Langue de Veau Fourrée (Veal Tongue Preserved).—

Trim the tongue, and blanch it for a quarter of an hour in boiling water. Then remove the skin that covers it, and place it in an earthen jar; sprinkle over it sixteen parts of salt and one of saltpetre, and some seasoning herbs chopped small. Then throw more herbs over it, and lay on it a round piece of wood, about the size of the inside of the jar, and put heavy weights on it to compress the tongue, so that it may soak in the brine that is produced. Put a cover on the jar, and place it in a cool and well-ventilated place for nine or ten days. Then take out the tongue and drain it, put it in a large polony skin, and tie the skin at both ends. If wished that the tongue should be smoked, place it on a grating elevated four or five feet above the floor, and burn under it a small fire of juniper wood, on which aromatic herbs are occasionally thrown. Beef tongues may be preserved in the same way.

Épaule de Veau à l'Étouffade (Shoulder of Veal Stewed).

—Place a shoulder of veal in a dish, covered with slices of bacon, together with some stock broth, slices of lemons, from which pips have been removed, or some spoonfuls of *vinaigre de l'estragon*, six onions, four carrots cut small, some parsley, chives, bay-leaves, thyme, salt, pepper, and a few cloves. Put a covering of paste over the dish, and cook in an oven for three hours.

Queues de Veau (Calves' Tails).—Cut them in three or four pieces, and blanch them in boiling water for a few minutes. Put them in a stewpan with pieces of bacon, an onion, into which a few cloves have been introduced, two carrots, a parsnip cut up small, parsley, chives, thyme, and bay-leaves, some slices of lemons from which the pips have been removed, or verjuice, if lemons cannot be had. Pour in some stock broth and a glassful of white wine, and season with salt and pepper, and simmer at a moderate heat until the meat is done. Then boil down the liquid in the stewpan to the consistence of sauce, and if necessary thicken it with the yolks of three eggs beat up. Stir them well together, and allow the sauce to cool. Then dip the pieces of the tails into it, and cover them with bread-crumbs. Brown them in an oven, and serve with *sauce piquante*.

Côtelettes de Veau en Papillotes (Veal Cutlets Dressed in Paper).—To prepare this dish, steep the cutlets for more than an hour in the oil and other materials directed to be used for *côtelettes de veau grillées et panées*, and then lay each cutlet on a sheet of white paper previously covered with sweet oil, cover them with bread-crumbs, and pour over them the rest of the fluid in which they have been soaked, and lay a slice of bacon on each. Then wrap the paper over each cutlet in such a manner that the oil it contains cannot escape. Attach a string to each, and roast them before a gentle fire, that the paper may not burn, and serve them when ready, without removing the paper.

Côtelettes de Veau à la Lyonnaise (Veal Cutlets Dressed in the Lyons Manner).—Cover some cutlets with bacon, anchovies, and small cucumbers cut in pieces. Put them for an hour to steep in a *marinade* composed of oil, salt, pepper, parsley, chives, shallots, cut very small, and then simmer them until cooked in the *marinade* over a slow fire. Now put some butter in a stewpan, and thicken it with flour. Add some parsley, chives, and shallots, chopped up small, mix them well, and pour in some of the liquor in which the meat has been cooked, thicken it, and pour it over the cutlets. The juice of a lemon should also be squeezed over the meat before sending to table.

Poitrine de Veau au Blanc (Breast of Veal with Cream).—Cut the breast into pieces, and blanch them in hot water. Cook them in a stewpan with butter, mush-

rooms, parsley, chives, and thyme, and thicken with a little flour. Season with salt and pepper, and pour in some stock broth. When the meat is sufficiently done, pour over it a mixture of the yolks of three eggs beaten up with cream.

Poitrine de Veau à la Purée (Breast of Veal with Broth).—Take a breast of veal, cut it in pieces, blanch it, and dress it in stock broth with slices of bacon, together with parsley, chives, and thyme. Season with pepper and salt, but not much of the latter should be added, owing to the salt already contained in the bacon. When the veal is cooked, serve it with *purée de lentilles* or *purée de pois verts*, prepared with gravy from the veal.

Poitrine de Veau Farinée (Breast of Veal Stuffed).—Cut away the rib-bones from a breast of veal, separate the flesh, and fill the space thus produced with stuffing. Then bring the edges of the meat together that it may not drop out. Now cover the inside of a stewpan with slices of bacon, and add onions into which a few cloves have been introduced, carrots, parsley, chives, bay-leaves, and thyme. Pour over them some stock-broth and a glass of white wine, and let them simmer for three hours over a slow fire. As soon as the breast of veal is done, prepare a *roux* slightly coloured, and dissolve it in the gravy from the meat, to make a sauce. When ready, add a spoonful of *jus* and the juice of a lemon.

Kissoles de Veau (Veal Pies).—Cut some roasted veal into small squares, dress in a pan over the fire with butter, parsley, and chives, cut up small. Thicken it with some flour, and add some stock broth or gravy. Boil down until the liquid has soaked into the meat, and then empty the contents of the saucepan into a plate to cool. Now get ready a paste made with flour, butter, water, and salt. Roll it out into a thin sheet, and place the meat on it in small heaps, separated one from the other, and cover each of them over with some of the same paste. Cut the sheet of paste round each heap, compress the edges of the upper and lower pieces of paste to unite them, and then cook the pies in an oven not too hot.

Veau en Papillotes.—Cut some veal into thin slices, and then into squares. Flatten out each piece with a chopper, and cover it with *godiveau*, or any other kind of forcemeat that may be preferred. Cover each piece with a slice of bacon, and tie it on with string. Arrange the pieces on a skewer, cover them with paper, and cook them before a clear fire. *Veau en papillotes* should be sent to table with *sauce piquante*.

Quasi de Veau Glacé (the Thick End of a Loin of Veal Glazed).—Cover the veal on one side with slices of bacon, and cook it for *fricandeau*. Boil down the gravy to the consistence of jelly, and glaze the veal with it, the side to which the bacon is attached being underneath. Now pour some stock broth, and half a glassful of wine into the stewpan, to dissolve out the jelly that is left in it. Mix with it some anchovies, cucumbers, and capers, and pour it over the meat.

Noix de Veau Glacé (Kernel of Veal Glazed).—This is prepared in the manner directed for *quasi de veau glacé*.

Côtelettes de Veau Grillées et Panées (Veal Cutlets covered with Bread-crumbs and Broiled).—Steep the cutlets for an hour in olive-oil, with parsley, chives, bay-leaves, thyme, pepper, and salt, lemon-juice, verjuice, or vinegar. Cover them with bread-crumbs, and broil them over a clear fire. *Côtelettes de veau grillées* may be served either without sauce, or with *sauce à la ravigote*.

Côtelettes de Veau Braisées aux Truffes (Veal Cutlets with Truffles).—Trim the cutlets, lard them, and cover them with truffles cut in slips. Then place some slices of bacon at the bottom of a stewpan, put the cutlets in it, and lay more slices of bacon over them. Add to them parsley, chives, bay-leaves, thyme, salt, and pepper, together with two carrots and an onion into which a few cloves have been stuck. Pour over them equal parts of

white wine and stock broth, and simmer at a gentle heat, until the meat is done. Then remove it, and boil down the contents of the stewpan to the consistence of sauce, and add a spoonful of *jus au vin* or *marmelade de tomates*, and serve it as a sauce with the cutlets.

Côtelettes de Veau au Lard (Veal Cutlets with Bacon).—Place some lean bacon cut in slices at the bottom of a stewpan, with a small quantity of butter, and put the cutlets on them. Cook the meat at a gentle heat, and when ready put the cutlets on a dish, and cover them over with the bacon. Boil down half the gravy left in the stewpan, with some chopped parsley and shalots, and pepper. Add some lemon-juice, or vinegar, and three raw eggs beaten up, and send it to table as a sauce for the cutlets.

Côtelettes de Cochon Grillées (Pork Cutlets Broiled).—Broil the cutlets over a slow fire, and send them to table with *sauce Robert* or *sauce aux cornichons*.

Côtelettes de Cochon à la Poêle.—Place the cutlets in a frying-pan or buttered dish, and cook them in their own juice. When they are cooking, throw in some bread-crumbs, and seasonings of parsley, chives, and other herbs, cut as fine as possible, together with sufficient salt and pepper. Then put into a stewpan a little butter and flour, and some shalots chopped up; brown them, and add the gravy from the cutlets to form a sauce. Before sending it to table with the meat, a spoonful of mustard should be added.

Cervelles de Cochon (Pig's Brains) are dressed for the table in the various ways directed for *cervelles de veau*.

Queues de Cochons à la Purée (Pigs' Tails Dressed with Purée).—Simmer the tails in stock broth, together with carrots, onions in which a few cloves have been inserted, chives, parsley, bay-leaves, thyme, &c., salt, and pepper, until done. Then let them become cold, and cover them with melted butter and bread-crumbs, and afterwards with the yolks of eggs beaten up, and more bread-crumbs. Brown them in an oven or under a hot cover, and serve with *purée de lentilles*, or *purée de pois*.

Pieds de Cochon au Naturel (Pig's Trotters Boiled).—Cut the pig's feet down the cleft part into two portions, place them again in contact, and tie them together with string. Then cook them with water in a pan with carrots, onions, parsley, chives, salt, and pepper. Let them simmer for twenty-four hours, and then empty the vessel into a dish, and let the trotters become cold before removing them.

Pieds de Cochon à la Sainte Menehould (Pig's Trotters with Bread-crumbs).—Boil some pig's feet *au naturel*, steep them in melting butter, season with salt and pepper, and cover them with as many bread-crumbs as possible. Boil them over a very slow fire, and serve them up with mustard.

Oreilles de Cochon à la Purée (Pig's Ears with Purée).—Pig's ears are dressed in a similar manner to *Pieds de Cochon à la Purée*. They are to be sent to table with *purée de pois* or *purée de lentilles*.

Oreilles de Cochon à la Menehould are cooked in the same way as *oreilles de cochon à la purée*, remolade being substituted for the *purée*.

Rognons de Cochon au Vin (Pork Kidneys Dressed in Wine).—Put some flour and butter in a stewpan, and brown it. Add the kidneys, cut up small, with salt, pepper, nutmeg, parsley, and shalots cut small. When sufficiently done, add a glass of white or red wine, and then thicken it with more flour and butter.

Rôties au Lard (Sliced Bacon Fried with Bread).—Cut through the middle of a small roll, and lay on it some slices of bacon. Divide the bread and bacon into slices, dip them in some raw eggs beaten up, and fry them over a moderate fire. *Rôties au lard* may either be sent to table as they are, or with any sauce that may be preferred.

WAX FLOWER MAKING.—I.

To manufacture wax flowers only a few articles are required, and they may be purchased at a slight expense. The most important are some sheets of thin wax, which may either be prepared by a method which will be shortly described, or purchased at ninepence per dozen, or six shillings per gross. The sheets are required to be of white and various colours, to imitate the flowers we wish to copy in wax. Occasionally wax of double thickness is needed, to imitate certain flowers, for which a double price is charged. As many flowers are streaked and variegated, various colours are required for tinting them. These may be purchased in the state of dry powder in small bottles, at one shilling each, or nine shillings per dozen. Some tinting-brushes for applying the colours are also wanted. They are similar in shape to those employed for marking letters with stencil-plates, or for Oriental painting. A representation of one of these brushes is given in Fig. 1. In cases where the expense of these colours is an object, the ordinary cakes of colour employed for painting in water-



Fig. 8.

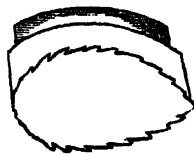


Fig. 10.

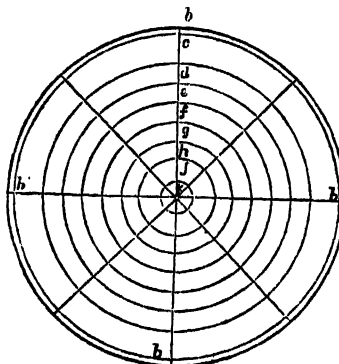


Fig. 7.

leaves composing the calyx, the second row must be arranged on the circle *d*, care being taken to arrange the leaves composing the second row either opposite or alternate to those of the first, according to the position they occupied in the flower from which they were taken. Then the petals are to be placed in order in the other circles, those of the first row being placed



Fig. 6.



Fig. 4.



Fig. 5.



Fig. 1.

Fig. 3.

Fig. 2.

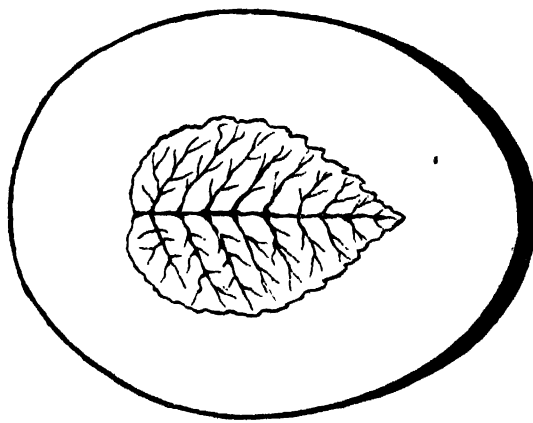


Fig. 9.

colours may be used, provided the surface of the sheet has been previously covered with a solution of purified ox-gall, to remove the greasiness of the wax. These brushes may be purchased at prices varying from threepence to sixpence each; a number of them will be required, as it is advisable to employ a separate brush for each colour used.

A few curling-pins of various sizes must also be had. These pins generally consist of glass beads attached to the end of a tapering wire, as shown in Fig. 2, but sometimes, when larger, they are made of ivory (Fig. 3). The price of the wire pins is usually three shillings a dozen, while the ivory ones are generally about one shilling each.

Some wooden moulds, represented in Figs. 4, 5, and 6, and which are turned out of hard wood, are also occasionally required for modelling particular flowers. They are usually sold at one shilling each.

Some hanks of wire, covered with cotton to imitate the stems of flowers, are also necessary. They should be

of various degrees of thickness, to suit the character of the flower to be imitated. The price will be found to vary, according to the diameter of the wire, from threepence to sixpence a hank.

A few other articles are occasionally required for wax flower making, but these will be mentioned when describing the different processes.

Before commencing to make a wax flower, the learner should procure a piece of cardboard about a foot square, and divide it into circles and angular spaces, as shown in Fig. 7. Now take the flower you wish to copy in wax, remove from it the "bracts," or outer leaves, and arrange them on the card on the outer circle marked *b b b b*. Then take off the leaves composing the calyx, and lay them in the circle marked *c*. If there is more than one row of leaves composing the calyx, the second row must be arranged on the circle *d*, care being taken to arrange the leaves composing the second row either opposite or alternate to those of the first, according to the position they occupied in the flower from which they were taken. Then the petals are to be placed in order in the other circles, those of the first row being placed

to lay the pattern on the dull, and not on the glossy side of the sheet of wax. By attending to this rule, the cut edge of the dull surface, which should always be the side exposed to view when the flower is completed, will always present a sharp and cleanly cut appearance, which otherwise it would not have. Great care must be taken that the pieces of wax are cut in the direction of the grain of the sheets, otherwise they will not bend so easily when curled into the shape of the flower, and will be also more brittle. As soon as each petal is cut out, it is to be laid down level on the sheet of paper until the required quantities are obtained. The numbers required to be cut are twenty of the pattern *b*, five of *c*, ten of *d*, the same number of *e*, and twenty of *f*.

The small pieces of wax which represent the centre petals of the rose are now to be coloured so as to be of a deeper tint than those portions which compose the outside of the flower. This is done in the following manner:—A small quantity of colour is mixed with water on a palette until it acquires the consistence of cream. The brush is then dipped into the colour, and passed rapidly over the dull surface of the wax we wish to colour, care being taken to hold the brush perfectly upright, and to pass it carefully in the direction of the grain of the wax, and not across it. It is also necessary to remember never to dip the brush in water before use, as it not only injures it, but also interferes with the proper action of the brush when used. Care must also be taken that the paint is not applied to that portion of the petal which has to join the other pieces of wax, otherwise it will not adhere when brought in contact.

A piece of wire covered with cotton, of the proper length and thickness to form the stem, is now selected. One extremity of it is bent into a loop, and covered with fragments or cuttings of sheet-wax until it forms a mass called the foundation, to which the petals are to be attached.

The curling-pin is now taken in the right hand, and dipped in a glass of water to moisten it, and then rolled over the petal contained in the palm of the left hand, so as to curl it, and the required shape is then given by pressing the middle of the piece of wax against the stem of the curling-pin. The small petals are then attached to the foundation in bunches of from three to five pieces of wax, but the larger ones which are employed for the outer portions of the flower must be attached separately, care being taken while arranging the petals that the appearance of the natural flower is imitated as far as possible. Indeed, it will be always found advisable for learners to have before them a real flower of the kind they intend to imitate for a copy.

With reference to the calyx, or the green outer portion of the flower, five pieces of the size and form represented in Fig. 8 are to be cut out from a sheet of green wax, which should be selected to match as closely as possible the tint of the real flower. These pieces are then joined together, and attached to the rest of the flower.

The peculiar mossy appearance, from which the moss rose derives its name is then to be given to it by removing the fibres from some dry moss, and having cut them into small pieces, press them gently on the surface of the calyx.

The seed-cup is now to be made out of some green wax, and inserted into the centre of the flower, being careful to imitate nature as closely as possible.

When placed in position, the seed is to be covered with moss in a similar manner to the calyx. The easiest way to imitate the leaves of the moss rose or other flower is to take artificial leaves made of cambric, and enclose them between two pieces of sheet-wax cut to the proper size. The wax is then gently compressed until it assumes the appearance presented by the enclosed leaf; and at the same time a piece of covered wire to represent the

stalk of the leaf is also enclosed between the pieces of wax. These cambric leaves may be had assorted, at prices varying from one shilling a gross. Sometimes moulds made in plaster of Paris are used for making the leaves. The sheet-wax cut into the shape of a leaf is placed in it, and by careful pressure made to assume the appearance presented in the mould. One of these moulds is represented by Fig. 9. They may be purchased for sixpence each from any of the dealers in materials for wax flower making.

The method employed for the manufacture of wax flower leaves where a large quantity is required is to cut them from the sheet of wax by means of cutters. These instruments, which are made of tin, and one of which is shown in Fig. 10, are very cheap, costing from three-pence to sixpence each. But leaves made by this method are not equal in appearance to those obtained by the employment of the scissors-and-paper pattern, since in the latter case the edges of the imitation leaves are cut smooth, while in the other they are apt to be uneven; besides which, as, for the flower to look natural, the leaves must of course be made of various sizes, a number of cutters must be employed.

If preferred, imitation wax leaves may be purchased ready for use, from two shillings per dozen, according to the size and quality required.

When the leaves are finished, the other end of the wire to which they are attached is twisted as neatly as possible round the one forming the stem, and they are then covered over with strips of sheet-wax of the required colour.

BUILDING SOCIETIES.—I.

THERE are few persons who would not, if it lay within their power, desire to become the owners of the houses in which they live. Formerly the attainment of such an amount of independence was, except in a few isolated cases, a matter of impossibility to any one not possessed of capital. In these days, however, the difficulty of achieving such an object has been removed, and the power of becoming his own landlord placed within the reach of every industrious and provident working man, as well as of all those who, from salary or any other source, are possessed of a tolerably regular income. This has been effected through the institution of building societies.

The primary and expressed object of all building societies is that of placing within the power of their members the means of building or purchasing houses on easy terms; and the manner in which they accomplish this we shall endeavour to explain. When based upon sound calculations, and well conducted, these institutions are also of value as effecting the same desirable results as the savings' bank and the benefit society.

The history of this class of associations is a brief one. So far as their career can be traced, the operations of the first building society were commenced at Kirkcudbright, in Scotland, under the auspices of the Earl of Selkirk, in the year 1815. The example of the Kirkcudbright club was followed in Scotland by other associations, under the name of *Ménages*. From Scotland the system spread to the north of England, and was freely taken up in Manchester and Liverpool, and thence throughout the whole kingdom. In 1836 building societies had become so numerous, and the advantages which they conferred upon the industrial classes so apparent, that upon the 14th of July an Act was passed for their encouragement and protection. Since that time they have increased rapidly. In the Metropolis alone they may now be counted by hundreds, while there is scarcely a country town of any importance in which one or more of them do not exist.

The leading principle upon which the action of building

societies is based is that of *association*—namely, upon the fact that a number of persons united in the pursuit of one common object can always attain that object far more readily than could the solitary individual. Thus in the case of a man of small means purchasing a house, as an individual, he will, even if he is in possession of sufficient money, find that a small property is only to be bought at a comparatively high price, and that he will have to submit to heavy legal expenses. If he has not the money, and wishes to purchase, he will frequently find it impossible to borrow; but should he succeed in so doing, the heavy cost of a mortgage will have to be incurred, the money may at any time be called in at a few months' notice, and the expense of a new mortgage rendered necessary. An association, on the other hand, having at its command a large capital, formed from the combined contributions of its members, possesses all the advantages of the great capitalist. It can go into the market and buy houses and land at wholesale prices; it can dictate to its legal officials the terms on which they shall work; it can lend to such of its members as may require advances; and it can guarantee to the borrower security in the possession of the sum borrowed. Chiefly, however, the advantage of association in building societies is found in the fact that the small periodical savings of its members, which, if left in the hands of the individual, would from their trifling amount be almost useless as capital, and unproductive, become when thrown into a common fund large enough to be employed advantageously, by being lent at interest to the members; the interest thus gained being lent again and again, as soon as received, and so made constantly reproductive.

We may show something of the effect of association in assisting the individual to attain a pecuniary object by a simple illustration. There are, we will say, ten neighbours, all of whom are desirous of obtaining £100. Each man can save £10 per annum only, and, acting alone (setting aside for clearness' sake the question of interest), he would have to wait ten years before the desired accumulation was made. Let, however, the ten individuals club their savings together, and at the end of the first year one man can receive his £100; another can receive his at the end of the second year, and so on, one man only having to wait for the full ten years.

The general advantages of association are, of course, to be derived by persons who unite for other objects than the purchase or building of houses; but there are reasons why that principle is of especial value when these are the particular objects in view. It is a well-known fact that all persons who live in hired houses pay for them a much higher sum, in the shape of rent, than fair interest on the capital required to buy or build such houses; and this rent is paid year after year, without the tenant acquiring any interest or right of property in the dwelling. Yet the sums so paid would, in many cases alone, and in all cases with a trifling additional sum, be sufficient, if the house were bought, to pay interest on the purchase-money, and in the course of a few years to liquidate the principal also. It is evident, therefore, that if the householder can by associating himself with others purchase his house, and pay off the purchase-money by periodical instalments in the same manner as rent, and in scarcely greater amount, he will eventually become the owner of the house, and consequently, to the extent of its value, a gainer.

Every building society may thus be said to be based upon the application of the principle of association to the capitalisation of rent. "It is a kind of joint-stock association" (as Mr. Scratchley well defines it), "the members of which subscribe periodically, and in proportion to the number of shares which they hold, into the common fund," from which loans are advanced to such members as may require them. "The payments of borrowers are so calculated as to enable them to repay by equal periodical

instalments, spread over a specified period, the principal of the sum borrowed, and whatever interest may be due upon it throughout the duration of the loan." At the same time those members who do not borrow are entitled to receive, at the end of a certain number of years, a sum of money equal to the amount of their subscriptions, and compound interest upon them.

In actual practice, as will be seen from the above, it will not be all the members who will join for the purpose of raising money for buying or building houses. Some will enter the association for no other purpose beyond that of finding a safe and remunerative investment for their savings; but these persons will materially advance the main object of the institution by increasing the funds, and thus allowing those members who desire to borrow money for building purposes to do so more quickly and readily. Building societies, then, consist of two classes of members—investors and borrowers—the former gaining at the same time high interest and real security for their investments, and the latter speedy advances to enable them to build.

Thus far, in their general principles and objects, all building societies are alike, but they are carried out in different methods, and consist of two great divisions—the terminating and the permanent.

In a terminating society the members resolve to subscribe a fixed monthly payment till each man's share has, through subscription, interest, &c., accumulated to some amount agreed upon, which is usually £120. As soon as sufficient money has been received to permit of a share being advanced, it is commonly disposed of by way of loan to that member who is willing to pay the highest premium for it. The premiums thus paid go to augment the common fund; and as soon as sufficient money has been realised to pay the total of all the shares, the society comes to an end.

In a permanent society, the members pay a certain monthly subscription for such a number of years as may be calculated to be sufficient to realise the value of the share, at the end of which time the member receives the stipulated amount, and his connection with the society ceases; but the society itself goes on continuously, being constantly joined by new members, as the old ones leave it.

In the earlier days of the building society movement, the terminating system was that usually adopted; but experience has now shown that the permanent is open to fewer objections, and it has during recent years been the one most in favour. In a terminating society, it is necessary for any member who joins after its commencement, to pay an entrance fee equal to the amount of back subscriptions. This is frequently a difficulty with intending members, who have only a small monthly sum at command, and does not occur in permanent societies, which can be joined at any time. In the terminating society the period over which subscriptions will have to be extended can never be accurately fixed, as the realisation of the full amount of the shares must depend on various contingencies; but in a permanent society it can be settled definitely. In the terminating societies, during the last years of their existence, it is often difficult to find borrowers, as the loans are then only for a short time, and the rate of periodical repayment is consequently high, whilst in the permanent it is generally easy to find investments. It is also more easy to withdraw subscriptions, or to redeem a mortgage, in the latter. The working expenses can also be more equally distributed, and the management, being an established, and not merely a temporary one, will generally be better.

As it commonly happens that there are more members requiring advances than can be accommodated at once, various methods are in use for allotting them paid-up shares when ready to be lent. In terminating societies, the advance is usually granted to the highest bidder. The chairman puts up the share, and members make written

biddings. At a second meeting the share is again put up at the highest premium offered on the previous occasion, and the same at a third meeting, when it is finally disposed of. By this proceeding, a member to whom the advance is a necessity, is often driven to pay an excessive price for it; and although this swells out the funds of the society, and is beneficial to the investors, it is open to serious objections.

In permanent societies advances are more often made by rotation, members receiving them in the order in which they enter their names for the purpose; or by ballot, each applicant having, in this case, an equal chance of obtaining the loan. When shares are allotted by rotation, a member has frequently to wait a considerable time before he obtains his advance, while by the ballot each has an equal chance; and in some societies both systems are employed, one-half of the shares being allotted by ballot and one-half by rotation.

ODDS AND ENDS.

Handsome Curtains at Little Cost.—Curtains which look exceedingly handsome at a little distance, and the real character of which would never be suspected, except upon close examination, may be made of ordinary green baize, with bands of the webbing used for making saddlegirths sewn upon it. The latter material is to be bought in various colours, and two or three bands of it should be sewn near the bottom of the curtain. Such curtains have the best effect in large rooms, and they may be found a cheap and useful expedient in temporary decorations.

Impromptu Mouse-traps.—When a proper mouse-trap is not at hand, one which will be found equally efficacious may be made of a meat-plate and a basin just large enough to fit within its rim. There are two ways of setting—one by screwing the bait upon the point of a small gimlet, and allowing the rim of the basin to rest upon its handle, and the other by wedging the bait tightly into the bowl of a tobacco-pipe or a thimble, and placing it in the same manner.

Simple and Expeditious Method of Imitating Marble.—Any person may paint a wooden mantelpiece, &c., and obtain the effect of elaborate marble painting by the following simple method:—First give the woodwork two coats of white paint, and when the second coat is nearly dry, take a piece of *French chalk*, either black or of any other colour with which you may prefer to have your marble veined, and with this draw lines and marks to represent veins—this requires no skill, as the more rudely they are drawn the more closely will they resemble the natural markings—then give a third coat of thin white paint.* Into this the chalk will work up, and the lines will assume the softened and graduated effect seen in real marble. A glossy surface may be given by an after coat of copal varnish.

Imitation of Armour.—In getting up impromptu dresses and properties for charades and private theatricals, the production of armour is usually an insuperable difficulty. This difficulty may be overcome by making the different pieces of strong brown paper, and then well black-leading them. An effect may thus be obtained which will more closely resemble that of ancient armour than does the polished steel and electro-plate of the theatres.

A Simple Ornament for the Figeate in Summer.—One of the most simple, and at the same time one of the prettiest decorations for the grate, is a sheet of coloured paper cut into strips to within a short distance of the top, and the strips woven between the bars, so as to produce a basket pattern. Their lower ends may be cut into fringe, or some other pattern, and the top into a zig-zag, &c. Gold stars or other small ornaments gummed on the strips will increase their effect.

How to Make a Weather-house.—For the framework of a weather-house an old cigar-box will be well suited. A piece of catgut such as that used for the third string of a violin will be required, and this should be nearly as long as the cigar-box is high. Through the centre of the end of the box a hole must be bored with a bradawl, and into this one end of the catgut should be tightly wedged with a wooden peg. This, when the box is placed in its proper position, will form the top of the weather-house, and the catgut will hang down. Through the lower end of the gut, about three-quarters of an inch from the bottom of the box, thrust a piece of wire, say three inches long and as thick as a large needle; this should in ordinary hang parallel to the front of the box, but the ends should be bent so as to project forwards. On the ends the figures to indicate wet or dry should be placed, and small Dutch dolls of an inch in length may be used, and dressed in character—the male one at that end of the wire which will be thrust forward when the gut untwists through damp weather, and the female at that which will come forward when, owing to dryness, the gut again contracts. A loop of wire may be fixed from the back, just above the cross wire, for the gut to play through and to keep it steady, and nothing more will be needed except the ornamental front. For this no design is better than the ordinary one, which is an old or rustic building, with two doorways for the figures. Take a piece of cardboard and cut out the doorways and windows, and the latter may be glazed by fixing a piece of glass at the back; narrow strips of white paper gummed across these will form mullions; and the appearance of octagonal panes is given by gumming a piece of cap-net over the glass. The rough-cast appearance upon the front is usually obtained by spreading a coat of glue over the cardboard, and then sprinkling on coarse sand, broken shells, &c.; but this may be better and more artistically done by gumming over the front a sheet of the coarsest glass-paper, and painting upon this with oil-colours, to imitate stone-work. The front must be large enough to conceal the box, and must be fixed upon it with glue. Glass-paper of various degrees of fineness, used as above, will also be found applicable to making models of small buildings or ruins in cardboard, for chimney or other ornaments; and where the finer kinds of glass or sand paper are used, water-colours are better than oils for tinting them.

Roast Lobster.—Half boil a lobster, and, while still hot, remove the shell, cover it with butter, and roast it before a clear fire, continually basting it with butter to keep it moist.

Cocoa-nuts.—The three holes in the shell of the cocoa-nut, which give it such a comical resemblance to a monkey's head, are for the purpose of allowing the young tree to issue from the shell when the nut is planted. The shell with which the cocoa-nuts are covered is extremely hard. When steeped in water it may be beaten out into a substance resembling flax, from which a coarse material may be woven. Cocoa-nut matting and similar articles are also manufactured from these shells. Inside the hard shell is a layer of white substance, which is both eaten and also much employed in the manufacture of cheap confectionary. When this substance is exposed to the action of a powerful press, an oil is obtained which may be employed in lamps, and burns with a bright clear flame, without producing any smoke or disagreeable smell. A quantity of milk-like fluid is also contained in the interior of the nut, and which, when the nut is young, is much esteemed, but as the fruit grows older the milk becomes more acid and more cooling. A sweet oil may also be obtained from the milk by boiling it at a gentle heat. The milk obtained from the cocoa-nut may be employed instead of ordinary milk for rice puddings, custards, and similar preparations. The nut itself is used for puddings, cheese-cakes, puffs, &c.

CAGE-BIRDS.—XIV.

PARROTS.

THESE are a remarkable group of birds. The singularity of the habits of some, the gorgeous variety of their colours, their mischievous propensities, their climbing amongst the branches of trees dexterously, their chattering and screaming clamorously, the intelligence apparent in the expression of their eyes, amaze many persons at their peculiarities. In their habits and modes of life, the congeners more or less vary from each other.

The whole of the family has been divided into the following sub-families, viz., parrots, parrakeets, macaws, cockatoos, lories, lorietts (or broadtails), and nestors.

The greater part of the numerous family of parrots (*Psittacina*) live upon the produce of the trees in their native tropical forests; some are birds that find their food on the ground. They are principally inhabitants of tropical countries, and feed on vegetables—kernels of fruits and the buds of flowers and trees being the sources on which they depend for nourishment. The luxuriance of vegetation in tropical countries is great, and there is a constant succession of food for the parrots. Should this fail in one district, they are provided with the means of conveyance to another. Their wings are long and powerful, and they perform long journeys when driven by scarcity of food to a different part of the country. Their peculiar construction is so well adapted to their wants and likewise to their haunts, that they are enabled to scramble and climb over the trees with the greatest rapidity, and to scrutinise every twig with great perseverance.

They associate in large flocks, and although the depredations they commit among the fruits, flowers, and buds may be considerable, we must take into consideration the prolific tendency of nature in these climates, and may conclude that a beneficial service is performed by these birds in keeping under the destructive exuberance of the trees, whose luxuriance might otherwise be checked by the excess of their own fruitfulness. All parrots may be said to live upon vegetable food. Among the greater number this food is the kernels of fruits. They find these upon many of the palms, wild almonds, and various other trees. In order to enable them to open the valves of these nuts, a peculiar mechanism is required, as many of these nuts are compact and hard. This is done by an application of the powers of the bill in so perfect a manner that the bird is enabled to break the shell and get at the kernel with a small degree of labour. The bill works wholly by pressure, its operation assisted considerably by the short, muscular tongue, which guides the substance to the most effective part of the mandibles. When the shell or kernel is introduced into the bill, it is placed by the tongue against the hook of the upper man-

dible, in the very best position for the application of the lower mandible, by means of which the valves are to be separated. This is done by the touch of the tongue. The bill thus not only becomes a powerful crunching instrument, but is rendered effective in taking hold of small boughs with a firm grip, to assist the bird in its progress upon them.

There are several variations in the form of the bill in this numerous family. The parrakeets have the bill considerably smaller in proportion than the others, not exceeding one-third the length of the head, and not very broad, but it is firm in its texture, and, perhaps, proportionately, the most powerful of any.

The parrots' bills (properly so called) are half the length of the head, and very thick and strong. The cockatoos, which inhabit marshy places, and live upon softer food than the others, have weak bills. The macaws, which use the wing more than any of the others, and find much of their food on the tops of forest trees, have large bills, as long as the head, and very sharp-pointed.

In most of the birds of this family the tongue is thick and fleshy. Mr. Bennett says there are seven kinds. The red and blue, and blue and yellow "claim a pre-eminent rank for their superior size, and the brilliancy and variety of their colours."

Linnaeus uses the term *Psittacus* as the scientific name for macaws, and others *Macrocerus*.

The Red and Blue Macaw (*Psittacus Macao*, also *Macrocerus Aracanga*).—This is one of the largest of the parrot tribe, being two feet eight inches in length. It has a very strong beak, the upper mandible of which is very much hooked. The naked cheeks are covered with a wrinkled whitish skin. The head, neck, breast, belly, thighs, top of the back, and the upper wing-covers are of the finest vermillion; the

lower part of the back and the rump are light blue. The scapulars and large wing-covers are a mixture of blue, yellow, and green. The two longest middle feathers of the curved tail are scarlet, with bright brown tips; on either side the next is red and blue intermingled. The outer four are of a violet tinge, being blue above and red beneath. The colours sometimes vary, especially in the wings and tail, but the species will not be less easily known on that account. Two claws are directed forward and two backward. The female very much resembles the male. It is stated by a writer that some of these birds will imitate the songs of other birds, and warble sweetly, but such accomplishments are certainly very exceptional.

In their wild state they inhabit South America, particularly the damp woods in Guiana and Brazil, and the birds are often found in pairs. Sometimes two or three pairs are found together, but they can scarcely be termed gregarious. In their wild state comparatively little is known of their habits. Some writers have stated that one species burrows



GREY PARROT.

on the elevated banks of rivers and streams, and others may do so. The fruit of the palm-tree in its native country is its principal food. It feeds likewise on coffee near cultivated lands, and prefers dry seeds to succulent berries.

In a state of domestication it is sometimes placed in a very large, strong wire cage, high and wide enough to let it move with ease, and preserve its handsome tail in all its beauty. It sometimes creeps up the sides, and helps itself along with its large, strong beak. In this cage a tin drawer with two divisions is useful, as it entices these birds to bathe, which is beneficial to their health, and facilitates moulting, keeping their feathers in better order. Their food being moist, they seldom drink water. Some prefer to keep the bird "attached by a chain to a smooth pole, crossed by a transverse stick for a perch." This we likewise prefer as the best mode of confinement.

Boiled milk, in which soaked white bread is placed, should be given daily, care being taken that the milk is not sour; biscuit is not injurious. Macaws also like English fruits. Meat, sweetmeats, &c., often prove injurious. Some of these birds thus fed become unhealthy, tear their pinion feathers, and even make holes in different parts of their bodies.

The macaws that we see in this country have generally been reared from the nest. They learn to repeat many words.

Owing to their dung being liquid and foetid, they require, when caged, to be cleaned daily. This species should be kept warm when moulting, to improve its plumage.

Dealers sell more grey parrots and Australian parrakeets, termed budgerigars, than any other kinds of parrots, either macaws, cockatoos, or lorries, though some of these latter birds are decidedly handsomer. The macaws are expensive and troublesome, the cockatoos likewise; grey parrots talk more, and a greater number are kept, than any other kind of parrot, and they can be obtained at a less cost, and have less expensive full-sized cages than macaws, or cockatoos. Good cages for grey parrots may be obtained at from 14s. to 25s.

The Australian budgerigars are often kept in wagon-shaped cages, which may be bought at from 12s. 6d. to 21s.

The price of a talking parrot varies from £5 to £10; a grey African from £1 5s. to £2; an Amazon green from £1 to £2; Ceylon, £1; Australian parakeet, 5s. to £1; Bengal parakeets, £1 to £2; macaws, £5; cockatoos, £3 to £5.

Parrots and parrakeets will eat canary and millet-seed. Some give the parrots bread soaked in fresh boiled milk; others place in the milk occasionally wheat or Indian corn. Budgerigars require less soaked bread and milk than any other kind of parrakeet.

A small quantity of fine sulphur mixed with the seed, and also a small quantity of camphor placed in the water, will often relieve parrots of any kind, if attacked with illness.

The parrots most in favour as pets are the grey and green varieties. The former are the best talkers.

GARDENING.—LIII.

PLANTING AND CARE OF YOUNG FRUIT-TREES.

THE first consideration in the planting of fruit-trees is the preparation of the soil intended to receive them—first, not only in point of time, but also in importance. From the want of the exercise of sufficient care and the bestowal of sufficient time and labour on this matter, many persons fail in accomplishing their desire to possess a supply of fruit of their own growing; for if a tree is planted under conditions not calculated to ensure a fair and vigorous start and the maintenance of a healthy condition of the roots, no after treatment of the upper-growth, in the matter of pruning, &c., will induce a fruitful condition.

Drainage is the first point to be attended to in this preparation. All soils that rest on clay, or any impenetrable substratum that does not naturally provide a free and rapid outlet for superfluous moisture, must be efficiently drained to the depth of three feet, unless it happens that the soil rests on hard chalk or stone at a less depth than that, in which case the drains should be laid at as great a depth as can be secured to ensure a continuous fall for the drainage water; and whenever the average depth of the soil above such a substratum is less than two feet, the trees there planted should be grown in the pyramid or bush form, of which we will speak presently.

The drainage being secured, either naturally or artificially, the ground must be trenched down to within six inches of the drain-pipes. If it is good free-working soil throughout its entire depth, it should be turned over in the process of trenching, bringing the lower stratum to the surface, and placing the top soil at the bottom; but if the lower or subsoil is of clay, gravel, or other undesirable material, it should be thoroughly broken up, and the bulk of it left in the bottom, but a portion of it may be brought up and placed on the surface, so as to be thoroughly exposed to the



AUSTRALIAN STRIPED PARROT.

action of the weather, which will disintegrate and ameliorate it, and add something to the bulk of the top or free soil. These operations should be completed, if possible, by the end of September, and during the following month the top soil should be lightly dug over one spade deep two or three times, choosing times when the surface is tolerably dry; this will aerate and thoroughly sweeten the ground by the end of October, at which time the planting should be done. On very poor hungry soil, a dressing of good rotten manure may be laid on and dug in at the last digging; but all other soils that are in tolerably good heart will do better without manure, as a too rich condition of soil will promote a growth of rank luxuriant wood, which will be unfruitful. This treatment applies to a border or plot of ground intended to be devoted entirely to fruit-tree culture; but if it is desirable to undercrop the ground with vegetables, it is obvious that this preparation will be eminently calculated to ensure a good and healthy growth of such crops, so long as the growth of the fruit-trees does not overshadow the ground

too much. But in the planting of single trees in isolated positions, the same principles of treatment must be observed, as far as circumstances will allow, and for each tree a space of not less than four feet square should be broken up.

At the time mentioned for planting, many of the trees will still have considerable numbers of their leaves hanging, and many persons would hesitate to remove them thus early, thinking it would injure them; but, so far from this being the case, it is a positive advantage that their active growth should not have entirely ceased, as they are thus, under the influence of the earth heat, which is at this time still considerable, enabled to emit new roots, and, by becoming established in the soil at once, they are better able to withstand the vicissitudes of the following winter. They will break into a free growth in the spring, rarely exhibiting any evidence of having been recently removed, and will suffer but little should the following summer prove dry, requiring comparatively but little water; while late planted trees, from their inability to commence root action until the earth becomes warmed in the spring, are exposed to risks in the event of a severe winter, and require nursing through the following summer; in fact, it makes just a season's difference to them.

In purchasing the trees from the nursery grower, select clean, healthy, vigorous young trees; and as all fruit-trees are either grafted or budded, direct your attention to the work, or union, which is the position where the scion is united to the stock, usually about a foot from the ground, although sometimes, in the case of standards, the union is at the top of the stem, just where the head of the tree branches out; and if the growth of the stock and scion do not assimilate in size of girth, reject them as unlikely to do well, more especially if the stock is less in girth than the scion—in this case the constitution of the stock is not sufficiently vigorous to support the scion for any length of time. In the opposite case, when the stock is disproportionately large, the probability is that the tree will be many years coming to a fruitful condition, from the excessive vigour of the stock.

On the receipt of the trees at home, proceed to the planting at once, as every day the roots are out of the ground is an injury to them. The exception to this rule is when the ground, from heavy or long-continued rain, is in a wet pasty condition, when it will be better to wait a day or two, the trees in the meantime to be carefully laid in by the roots in a corner or some sheltered position, where the soil is, if possible, comparatively dry, laying the heads of the trees down so that they touch the ground, as in this position they will be less likely to be disturbed by wind.

In the operation of planting, the hole to receive the tree must be dug out sufficiently large to admit of the full spread of the roots, without contracting or crowding them in any way, and of a depth just sufficient to allow of the collar of the plant, which is where the root-bark and stem-bark meet (to an unpractised eye this must be determined by the evidences of its former planting), to stand at the ground line when filled in. Many trees are irreparably injured by too deep planting; for it is as necessary that the stem-bark should be exposed to the light and air as that the roots should be covered by the soil, and when this stem-bark is buried under the soil it decays, and the necessary circulation of the sap is consequently impeded. The ends of all roots that have been cut by the spade, or otherwise bruised, must be cut with a clean cut by a sharp knife, as these bruised ends will not emit new rootlets. The roots being duly spread out in the hole, the soil to be placed in immediate contact with them should be fine and crumbly, to ensure that all the fibres shall be absolutely in close contact with the soil. Before filling the hole completely, tread the soil gently but firmly over with the foot, and, no matter what may be the condition of the soil,

give every tree about a pail of water—this will ensure the soil settling closely about the roots—after which, complete the filling in, and stake and tie every plant *at once*, as every motion of the tree by the wind will disturb and injure the young roots as fast as they form. Some time not later than the end of November place on the ground over the roots of each tree a covering of three or four inches of half-rotten manure, leaves, or fern-brake; this will materially ward off the effects of frost on the young roots during the winter.

We will now give a short list of the most serviceable kinds to plant. Having in view chiefly the wants of amateurs with a limited area of ground, we will select those that are good for their respective purposes, and that can be best depended on for generally furnishing a crop, and coming in for use in the order in which they stand.

Kitchen Apples.—Dutch Codlin, Keswick Codlin, Hawthornden, Gravenstein, Beauty of Kent, Blenheim Orange, Dumelow's Seedling, Kentish Filbasket, Yorkshire Greening, Lord Suffield.

Table Apples.—Red Juneating, Summer Golden Pippin, Red Quarrenden, Summer Gilliflower, Kerry Pippin, Red Astrakhan, Franklin's Golden Pippin, Royal Russet, Reineette du Canada, Ribston Pippin, Scarlet Pearmain, New Golden Pippin, Warner's Pippin.

Dessert Pears.—Jargonelle, Beurré Giffard, Beurré d'Amanlis, William's Bon Chrétien, White Doyenné, Dunmore, Marie Louise, Louise Bonne of Jersey, Autumn Colmar, Beurré Diel, Chaumontel, Glout Morceau, Grosse Calchasse, Passe Colmar, Winter Nelis, Easter Beurré, Josephine de Malines.

Baking Pears.—Catillac, Uvedale's St. Germain (an enormous pear, weighing from two to three pounds).

Dessert Plums.—Jefferson's, Royal Hâtive, Washington, Greengage, Coe's Golden Drop, Fellenburg, Coe's Late Red.

Kitchen Plums.—River's Prolific, Denyer's Victoria, Early Orleans, Goliath, Magnum Bonum, Pond's Seedling, Washington, White Magnum Bonum, Damson, White Bullace.

Table Cherries.—Early Amber Heart, Black Circassian, May Duke, Elton, Bigarreau, Royal Duke, Bigarreau Napoléon, Late Duke.

Kitchen Cherries.—Early Black, Kentish, Morello (this last is the best for preserving).

Mulberry.—Black

Medlar.—Dutch.

All these varieties can be purchased at—standards, 2s.; dwarfs, 1s. 6d.; trained for pyramids, pillars, or bushes, from 2s. 6d. to 3s. 6d.; with the exception of medlars, 2s. 6d. for standards, and 1s. 6d. dwarfs; and mulberries, standards, 5s. to 7s. 6d., dwarfs, 3s. to 4s.

The form of tree to be selected will depend on individual taste and circumstances. The open standard is the form best adapted for long-continued and profitable bearing but is longer in attaining a fruitful condition; they should be planted twenty feet apart, and the only pruning they require is the removal from time to time, while the tree is young, of those shoots which will in their progressive growth cross or interlace each other. All the shoots going to form the main branches should diverge uniformly from the centre of the head of the tree, and all the main lateral growths following in the same order, keeping the interior of the head moderately well open for the due admission of light and air.

The next most profitable form is the close-pruned standard, which may be planted ten feet apart, the branches to follow in the same order as in the open standard; the annual growth, or the shoots formed each summer, to be cut back in the winter to within about three buds of the base of each shoot, leaving only such shoots as are necessary to carry out the formation of a

well-balanced head, such shoots to be shortened about one-third, and to be so placed as to leave a space of about two feet clear between each branch and its neighbour. These summer shoots being cut back annually will induce the formation of fruit-bearing spurs, and an earlier fruitful condition, but they do not last so many years as a free-grown open standard.

The pyramid, pillar, and bush forms are indicated by their names, and require pruning in the same manner as the close-pruned standard, keeping in view for each form the desired shape to be attained; these are suitable for planting in quite small gardens, or may be introduced as a special and attractive feature in large gardens, in or in close proximity to the pleasure-grounds. These are grafted or budded on stocks specially adapted for a slow growth, and may be planted from four to six feet apart, and early attain a condition of fruitfulness, and, as before mentioned, are especially adapted for shallow soils.

To maintain the fruitful condition of these forms, on strong heavy soils, it is necessary to lift them every second or third year, at the planting season; this operation is performed by carefully digging round them and under the roots, and when lifted out, if there are any large woody roots that have struck deep into the heavy subsoil, they should be shortened back considerably, but care must be taken not to damage any of the smaller fibrous roots, as it is on the maintenance of this fibrous condition of the roots that the fruitfulness of the tree depends, and the operation of root-pruning and replanting tends to promote that condition. The soil should be well broken up, and the tree immediately replanted, in accordance with the instructions for the original planting.

When trees of this form get too large for bodily lifting, the operation of root pruning may be performed in the following manner:—Mark out a circle, six or eight feet in diameter (according to the size and age of the tree), the tree occupying the centre of the circle; then, on the outside of the circle, for one half of its circumference, take out a trench, two feet wide and two feet deep, cutting with the spade all the roots that are met with in the operation; then from the bottom of the trench carefully excavate with spade and mattock as far under as the stem of the tree, still cutting in two all roots met with; then with a keen-edged knife cut off all the bruised ends of the roots that have been cut by the heavier tools. The roots will from these cut ends throw out masses of small fibrous roots, which are essential to the development of the fruitful condition. The trench is then to be filled in again with soil. If the soil taken out of the trench is in a harsh, stony condition, some in better condition should be used, and it may be obtained by paring off a few inches of the surrounding soil, which, from its greater exposure to the air, should be in a more crumbly condition; tread it down moderately firm, and the operation is complete for that season. The other half of the roots are to be pruned in the same way the following season, unless the trees are very large, when it will be better to let two years elapse between the two parts of the entire operation, as the root-hold will not be sufficient to maintain the tree erect.

PLAISTERS FOR DOMESTIC USE.

PLAISTERS are so very efficacious in removing the many aches and pains that flesh is heir to, that it is right that every household should be familiar with the use of them. We are convinced they are not in such general use as they should be, owing to a general want of knowledge about them. They are composed of various ingredients, principally of an unctuous nature, possessing equal proportions of powder, wax, or resin, and metallic oxides, which,

when warm, are rolled into sticks, similar to sealing-wax, in lengths of from eight to nine inches, which are preserved in paper, previous to being spread upon the various materials used; viz., leather, linen, and silk. This is accomplished by a portion of the roll, or stick, being detached, by means of a heated spatula. The substance, when dry, loses its stickiness, but when applied to the human body, becomes warm, and firmly adheres. The heat applied when preparing the ingredients is that derived from steam, or a warm bath. The gums or resins used, when well dissolved, are thoroughly strained, and the composition, when approaching coolness, so as to form a paste, is well worked with the hand (which is greased with olive oil), until fit for the process of rolling. Save in the case of plaisters composed of soluble substances, the process of cooling may be hastened by submerging the compound, but the water must be afterwards well worked out by the aid of the hands. The rolls, in the event of becoming hard and brittle through age, should be re-moistened, and sufficient olive oil added to give the substance a pliable character. Plaisters of belladonna and ammoniacum, and mercury, when in the sticks, should not be enveloped in paper, but placed in pots.

The following plaisters will be found highly beneficial for the various ailments for which they are intended. We would here remark that all plaisters should be mixed and administered with care and judgment, and should not be used excepting under medical advice. Those plaisters marked with an asterisk—thus *—should only be used by the experienced:—

***NEURALGIA.**—*Aconite*. Take a common sticking-plaister, or a piece of calico, or leather, of the size required, and, having slowly evaporated some tincture of aconite, spread it thereon when it is reduced to a soft extract.

PULMONARY AFFECTIONS.—*Ammoniacal*. This plaister, which is highly recommended by Dr. Paris, is composed of 1 oz. of lead plaister, and $\frac{1}{2}$ oz. of finely-pared white soap, dissolved together, to which, when cool, add 1 dr. of finely-powdered sal ammoniac. A fresh plaister should be applied every twenty-four hours.

TUMOURS (SCROFULOUS AND INDOLENT).—*Ammoniacal*. Take 5 oz. of strained ammoniacum, and dilute 8 oz. of distilled vinegar, dissolve, and then evaporate gently: add 4 oz. of gum ammoniacum, and 4 oz. of proof spirit, which, having dissolved, evaporate as previously.

DYSPEPSIA, SPASMS, NAUSEA, FLATULENCY, &c.—*Aromatic*. Dissolve together $\frac{1}{2}$ oz. of beeswax, and 3 oz. of strained frankincense, and add to it, when cool, 1 dr. of pulverised cinnamon, and 2 dr. each of lemon and allspice. Place over the stomach.

SPASMS, HYSTERIA, AND WHOOPING-COUGH.—*Assafetida*. Dissolve together 1 oz. each of beeswax and strained galbanum, also 2 oz. each of lead plaister and strained assafetida. Apply to the stomach in spasms and hysteria; but in whooping-cough to the chest.

BAD LEGS AND SORES.—*Baynton's* (adhesive). Dissolve together 1 oz. of yellow resin, and 1 lb. of lead plaister.

RHEUMATISM IN THE JOINTS, AND LUMBAGO.—*Burgundy Pitch*. Dissolve together 4 oz. each of beeswax and yellow resin, to which add 2 lb. of prepared Burgundy pitch, well strained, and 1 lb. of prepared frankincense, stir in 2 oz. each of olive oil and water, and 1 oz. of oil of nutmeg, allowing it to evaporate to a firmness. Spread upon leather, and wear at the joints affected, for rheumatism, and on the loins for lumbago. A plaister which will also answer for similar complaints can be produced as follows:—Slowly dissolve together 5 $\frac{1}{2}$ lb. of Burgundy pitch, and $\frac{1}{2}$ lb. of cantharides plaister, and stir until firm. Should it produce in time sores or blisters, remove.

DRESSMAKING.

DRESSMAKING.—I.

BODICES.

IN order to practise dressmaking with comfort, the undisturbed use of a room, or the best part of one, is an essential requisite, with that of a large table which need not be cleared for meals nor for any other household necessity. This table should be of such a common ordinary kind as to give no occasion for fear of spoiling it in the using. Some people prefer a covering of green baize, drawn in tightly under the top, or a board with trestles, instead of a table. After you have manufactured a few dresses, however, you will be quite qualified to judge of what will suit you best. The other requisites are pins, needles, cottons, and silks for basting and machine use, a large pair of cutting-out scissors, small sized and button-hole scissors, chalk, a piercer, a yard-measure, hooks, eyes, lining, wax, and a leaden pincushion, if in the habit of using one. We must always suppose that you have a good sewing-machine, for without this aid and assistance dressmaking would indeed be a labour. Should you be making up very delicate materials, it is well to spread a clean sheet on the floor; and never neglect to cover up whatever you are working upon at night. The best

thoroughly well made for you, as it will prove a guide for home use. In a family of sisters it is possible for them to take it in turn to send a dress to a good maker, The same may be done with bonnets and mantles.

It is impossible to take too much trouble about dress-making. The best dressmakers excel inferior ones quite as much in this point as they do in taste. There cannot be too much exactness in placing every part, first pinning, and then tacking, neither can there be too much tacking. For instance: we have seen careless workers lay a cord in a piping, lay it on an armhole, and the sleeve over that, and stitch away, all without tacking. The cord should first be tacked in the piping, then pinned to the dress, then tacked, and then the sleeve pinned in. Thus treated, it will lie much more flat and exactly. The more finely the body is stitched the better it will be found to sit. The seams should be particularly flat.

When, as we have said, you have an old bodice cut by a good dressmaker which fits you accurately, you should consider, and use it as a model upon which all future dresses can be made. It should be unpicked with the greatest care, the ends of thread taken out, and one half—i.e., one front, one side-piece, and half the back—pasted upon tissue-paper. When dry, cut with a sharp pair of

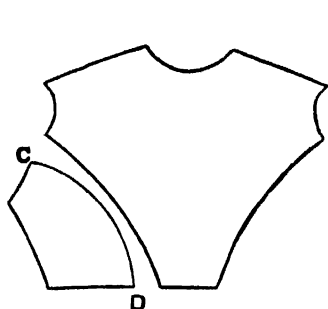


Fig. 4.

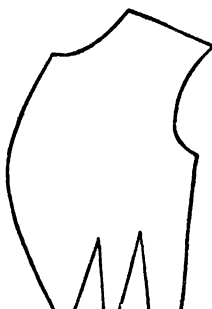


Fig. 1.

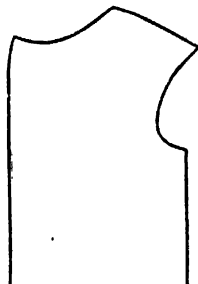


Fig. 2.

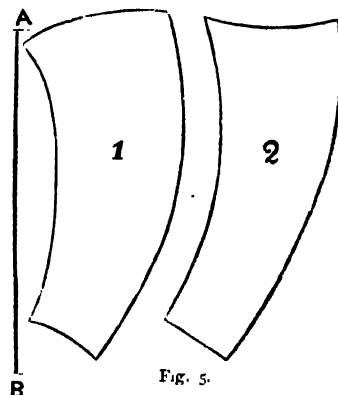


Fig. 5.

cotton for the purpose of tacking is the common cheap coloured reels, and if very saving, you may draw out the threads whole, and wind them again for use. Red or pink is usually the best amongst these. No. 6 is the best size for needles; and the most useful sizes of sewing-cotton, white and black, are 40, 30, and 36. Amateur dressmakers will find it most easy to make up plain materials. Stripes and plaids must join in pattern. Indeed, all patterns must be cut for the pieces to correspond, which wants some care, and also cuts into more stuff. Patterns, such as flowers, that have a right and wrong way up, must go the same way on the skirt, body, and sleeves.

The Best Way to Learn Dressmaking is to begin by turning old dresses. In unpicking you will see how they have been made. You then turn and make them up the same way. If you have an obliging person in the house to work for you, and you assist her, you will learn still more; and it is also possible to get practice by volunteering to help friends who make dresses at home. Your services are almost sure to be very welcome. If you have not begun yourself when very young, a younger sister's or daughter's school frock will give you an object to practise on, as the style and fit of the dresses of girls not yet in society matter less than those worn afterwards. You can proceed with your morning dresses. When you have a dress that fits well, and it requires to be unpicked, you can get an exact pattern from which to make afterwards, and with the help of this, by practice and by observing attentively your best dresses, you will soon become quite expert. It is a good plan to have a dress occasionally

scissors exactly along the line where the seams were sewn, by the stitch-marks. This will give you the exact pattern without turnings. The other half of the bodice should be pasted in a similar manner, with the turnings left, and both should have the name and date written plainly upon them. Armed with these, you will find little difficulty in cutting out all future dresses.

To commence making a dress, lay the pattern of the body-front on the lining upon the table. The front of the body is to be parallel with the selvage. If the stuff be wide, you may get two fronts out of one width, or you may do so by management, such as putting false hems down the front, or clipping the shoulders of one just below the other; but on no account allow the front to *slant* on the material: that is, do not cut it on the cross. Cut the centre of the back and get the side-pieces out of the hollows.

In cutting the front, your pattern may be sloped, like Fig. 1, in front. Do not cut your slope, but pierce it all along the mark of the slope with the piercer. It is sure to have side-seams like A and B, Fig. 1. Do not cut out these either, but pierce the outlines. At the neck, shoulder, side, armholes, waist, and front, mark the outline of the pattern, and then cut out the material beyond the prickings, allowing enough to turn in. For shoulder and side-seam allow one inch. For the front an inch and a half. For neck, waist, and armhole half an inch. It is best to allow the waist an inch over, and a little over at the armhole, as the seams work it up, and you have perforated the outline to where to take it in if too large. The front is therefore cut out like Fig. 2.

In cutting the back, mark the outline also (Fig. 3). Allow for shoulders and sides an inch. The side of seams to join the back (Fig. 4) half an inch. Side-seam, an inch. Neck of back half an inch, also armhole. Waist of both as for the front.

Having cut the lining first and pierced it, cut the dress-stuff by the lining. Lay the front of the dress-stuff on the table, face down. Lay on it the lining. With a needle and thread tack both together, half an inch within the edge all round. Tack round the seams, A and B, Fig. 1, which are called "the darts." Then put together the darts on the table, joining them by the marks of the piercer. Tack the other front to correspond.

Next tack the centre of the back (Fig. 3) and the side-pieces, and turn in half an inch of the edge, C to D (Fig. 4). Lay on these pieces an inch over the centre of back (Fig. 3), each side, and tack them in place. Now tack the shoulders and sides of the body together by the piercings, and try it on. Make any needful alteration. Be sure you have the dress material very close to the lining. Now with sewing-silk stitch the side-pieces of the backs. Stitch all the other seams on the wrong side with cotton. Cut off the edges of the darts, and remove any unevenness from the other seams. Hem the fronts. Stitch down the

In cutting a bell-sleeve, lay the inner part the same way. It will be seen in Fig. 5 that D is smaller than C, especially at the top, where it is hollowed—so many ladies make the mistake of thinking D is the front of the sleeve. It is not so. The large bow-top of C (Fig. 5) comes to the front of the dress; the top seam of the sleeve, behind this bow, should be one inch behind the shoulder-seam of the dress. Fix that right with a pin before you stitch in the sleeve, and settle the rest in accordance. But first the sleeve must be made. Narrow material will generally cut halves of coat-sleeves with three in a breadth. Run each to the lining. The seams are generally piped, but not always. The sleeves are merely run with an occasional back-stitch. Run a false piece to cuff (ribbon or material), turn it down on the wrong side, and hem it. If the sleeve be trimmed, lay on the trimming before stitching it to the body. Bell-sleeves must be cut together reversed, and each sleeve is cut in one piece.

It is a good plan to procure a thoroughly good pattern of a sleeve, and in cutting your own model from it to observe your private measurements of length at both sides, and the suitable width. With this accurate pattern of your own, you can readily adapt any new and fashionable sleeve which you may see to your own use, modifying all

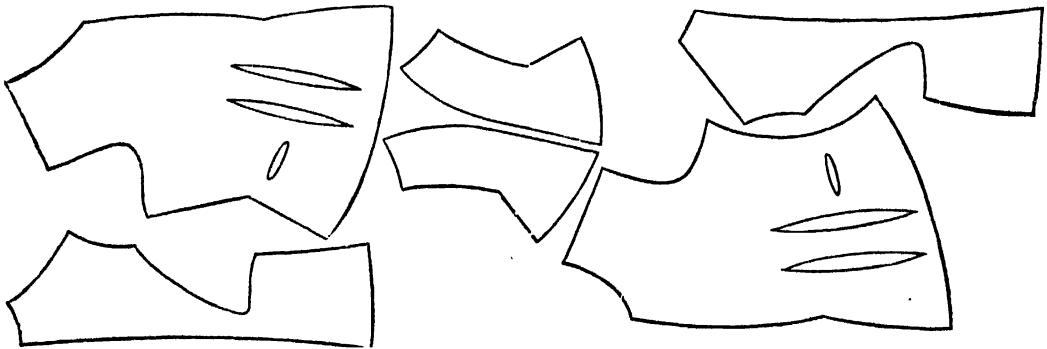


Fig. 6.

edge of the fronts, near the extremity, with silk. Cut the waistband. This and *all bands* must be cut *down* the selvage way, or they never sit well. All pipings are cut on the cross, or the bias, as it is sometimes called. Sleeves are on the bias. Backs and fronts of bodies must be cut straight, and down the stuff. Sleeves, also, though on the cross, must be cut *down* the material to sit properly. Cut your band an inch and a half wide. Turn down half an inch. Pin or tack it along the waist, pinning the body to a leaden cushion to get it straight. Open the side-seams and darts and iron them. Run on bone-cases. Cut a lining for the band. Lay it on the back of the dress, and hem it so that the stitches come just below the stitching on the right side. They must not show through. Turn in the edge of the stuff band and the edge of the lining band. Tack them together. Then neatly sew the edges, or merely run them finely together.

Stitch a piping round the neck, rather drawing in the neck than not. Either hem it down, or cut it off short, and run a narrow ribbon over it by both edges; the ribbon is best. Pipe the armholes. Make the button-holes down the front. Run round each button-hole with sewing-silk before you cut it. Then slightly overcast the edge. Next button-hole it well with Taylor's twist, which is sold by the yard at a penny. One yard is enough for a dress, as there are twelve strands of coarse silk in it. Sew on the buttons. Make the sleeves and stitch them in. Put in the bones, and the bodice is now complete.

To Make the Sleeve.—Fig. 5 shows how to cut the sleeves—A to B is the selvage. The top and cuff of the sleeve is placed to it; the bow of the sleeve gives slope enough.

the details so as to fit yourself. One yard and a half is the usual allowance for a perfectly plain coat-sleeve. Putting it into the bodice always requires great care. To suit the present style, no cording is used round the armholes; for the sleeves being cut so high on the shoulder, there is no strain upon them.

Bodies with pointed waists are piped at the waist as at the neck, and the piping stitched. A fine inch-broad tape should be sewn inside a body, at the back of the waist, with double hooks and eyes in front to keep down the back.

Low dresses and bodices are made like petticoat bodices. The trimmings and method of making vary greatly from year to year. The bertha is now made on the bodice itself, instead of a separate net foundation; and in order to make it fashionably the fashion plates of the day should be consulted.

Fig. 6 represents the method of cutting out one of the long plain basque-waists, and laying it out on the stuff to the best advantage. Careful study of this small design will prevent many mishaps in cutting, as by this way of placing there is no possibility of cutting both fronts for the same side, or two side-pieces alike. The directions for making are the same as those given for a plain body. The basques should be lined with silk or the same material, carefully cut to the shape. The basques are trimmed according to the reigning fashion, either with a bias band of silk, a narrow kilted plaiting at the edge, or a double or single cording. False basques can also be made for an old-fashioned dress, by cutting them from a pattern, lining and trimming them. They are then sewn on to a belt of the same material as the dress.

DOMESTIC MEDICINE.—LV.

SMALL-POX (*Variola*).

UNDER the head of infantile diseases we said a few words about this disease, which will be found in our early numbers. But alarming outbreaks have since then occurred, and public attention having been especially directed to the spread of the disease, we feel it proper to revert to the subject, to describe the symptoms, and the duty which every one owes to himself and his neighbours and friends at this crisis.

The most important thing is that people should know first, when they have got the disease; and secondly, how to avoid catching it; in other words, the symptoms and the mode of prevention. We shall take first—

Symptoms.—And here the most important thing for people to know is the earlier symptoms, so that they may isolate themselves in a room, or have themselves removed to a hospital, until the danger of conveying the disease to others passes over. Supposing a person to take the small-pox into his system, there is an interval of twelve days without any apparent effect. This is what doctors call the period of *latency*, or *incubation*. During this period the patient does not complain. At the end of this time begin the feelings of illness, which are some degree of shivering, lassitude, sickness, headache, and general aching or soreness, and especially a sore pain in the muscles of the back. Most of these symptoms are common to the onset of other febrile diseases. The distinctive one is the *pain in the back*, accompanying the others. This is so acute and severe, that we have known the doctor sent for on account of the pain in the back, from the feeling that the back had been injured or sprained. During an epidemic of small-pox, such symptoms should always excite suspicion, and the person affected should keep himself secluded as much as he can, and should confine himself to one room as thinly furnished with bed-hangings as possible. At the end of forty-eight hours, or thereabouts, an attentive observer will probably notice a few pimples or spots. They appear in the following order:—First, on the face, neck, and wrists; secondly, on trunk; and lastly on the lower extremities. These spots gradually enlarge for a week. After a short time a little pus or matter may be seen in the tops of them. They ripen about the ninth day, at which time the spots break; the matter in them oozing out so as to form a crust, or scab. In four or five days more these scabs begin to fall off.

Amount of Eruption.—The severity of any given case depends on the amount of eruption. If the spots are few in number they remain distinct, do not run into each other, and do not spoil and scar the skin. On the contrary, if the spots are very numerous, leaving little clear skin between them, they run into each other. When the body is covered with spots, and all these spots have to be filled, it can easily be imagined how much fever and irritation is caused. So much depends on the amount of eruption, that doctors divide small-pox cases into two classes, the discrete and the confluent—the discrete being that form in which the spots are few and do not coalesce, and the confluent that in which they do. The danger to life from the disease is almost confined to the severe or confluent cases, and in these it is greatest at the time of the maturation of the spots, or about the eleventh day of the disease, or the eighth of the eruption. At this time occurs what is called the *secondary fever*. After the first appearance of the eruption the fever subsides, until the spots begin to fill with matter, or about the seventh day; then begins an increase of feverishness, which reaches its height between the ninth and eleventh days. Unvaccinated people are very ill generally during this period of secondary fever, restlessness and sleeplessness being a prominent symptom. When the disease takes a favourable turn, fever comes to

an end about the thirteenth day, sleep returns, and the patient begins to feel less ill.

The Dregs of Small-pox.—Small-pox is not only a loathsome disease in itself, making the patients of it objects of danger and dread to others, but it leaves behind it in many cases, for a greater or less length of time, weakness, skin eruptions, such as boils, ulcers, carbuncles, sore eyes, &c.

Treatment.—Cases of small-pox are too serious to be treated by non-medical persons, unless at sea, or in other remote situations. Mild cases do not require much medicine; chiefly rest, fresh air, and a curtainless bed, with not too much bed-clothing; light diet, principally of milk, beef-tea, &c. During the eruptive and feverish stage of the disease, the following cooling mixture may be taken:—

Citrate of potash	...	...	...	1 drachm.
Spirits of nitre	...	...	...	2 drachms.
Water to	...	...	...	8 ounces.

Mix. An eighth part to be taken every four hours.

Dover's powder, from five to ten grains, at bed-time, may be taken, if there is great sleeplessness.

Lemonade, orangeade, and such drinks may be taken freely.

At the end of two weeks, or three, supposing the patient to be going on well, he is likely to be helped by small doses of quinine, such as the following prescription:—

Quinine	...	...	...	8 grains.
Dilute sulphuric acid	...	...	...	1 drachm.
Simple syrup	...	...	...	½ ounce.
Water to	...	...	...	8 ounces.

Mix. An eighth part three times a day

As soon as appetite returns a good diet will be required.

As many of the scabs as possible should be gathered from the bed-clothes from day to day, and burnt.

All persons waiting on the sick should be *re-vaccinated*. After this operation they will be practically proof against the disease.

The patient's linen should be disinfected by being steeped in a tub of water, containing half an ounce of crystallised carbolic acid, for three hours, then dried and well *ironed*. Nurses' linen should be subjected to the same precautions. The air of the room should be disinfected by putting a little chloride of lime in a saucer daily, and adding to it a table-spoonful of dilute sulphuric acid, or less if the chlorine disengaged irritates the patient's throat. The room should be well ventilated.

Precautions against Taking Small-pox.—Everybody above the age of nine years should be re-vaccinated; and where small-pox obtains in a house, everybody would act wisely to be re-vaccinated.

Is it Wise to be Vaccinated?—It is amazing that at this time of day any parents should be found so weak as to deny to their children the benefits of vaccination. In unvaccinated children small-pox is a killing disease. Of 103 cases admitted to the Small-pox Hospital below the age of ten years, no less than fifty-four died. In other words, more than one in two cases proved fatal. At all ages, of the vaccinated, 9·8 per cent. died; of the unvaccinated, 45·8 per cent. died. This is saying nothing of the other consequences short of death, such as blindness, boils, carbuncles, ulcers, &c. &c.

Is it Wise to be Re-vaccinated?—Let one fact be an answer to this question. People that are effectually re-vaccinated scarcely ever take the disease. The first vaccination greatly lessens one's liability to the disease, and makes it much milder when it occurs. But the second vaccination, if properly performed, seems to almost make it impossible to give the disease to the person re-vaccinated. Mr. Marson, of the Small-pox Hospital, says he always re-vaccinates nurses when they enter the hospital (if they have not had small-pox), and for thirty-four years they have not

had a nurse or an official afflicted with the disease, though living amongst it. Dr. Grieve, of the Hampstead Small-pox Hospital, says:—"A curious thing is, that of 800 cases under discussion not one could prove that he or she had been re-vaccinated, while we had two suffering from a second attack of small-pox." In other words, re-vaccination seems to be a greater protection against small-pox than one attack of small-pox itself. And yet there are well-meaning, but not very wise, people, who tell us not to be re-vaccinated, not to vaccinate our children; to prefer small-pox, which we have seen kills fifty out of a hundred children. They say that small-pox is a less evil. There is no reasoning with people that talk without reference to facts. Let us notice a few of their objections.

"Vaccination is the introduction of a disease into the blood."—But so is small-pox. And people that are not vaccinated are nearly certain to catch the small-pox, and be marked or killed by it. Vaccination is a slight disease, scarcely ever known to be fatal; whereas small-pox kills nearly half those whom it attacks, and below ten, more than half. Of two evils, choose the least.

"Vaccination is sometimes followed by eruptions."—So is small-pox, only in the case of small-pox such eruptions are much more obstinate and intractable, whereas they are the exception after vaccination, and milder than after any other form of eruptive disease.

"Constitutional diseases may be conveyed by vaccination."—This is denied by many. Without denying it absolutely, it is certainly extremely rare, because most doctors have not seen it. Even if it happened more frequently, it would not be an argument of much force, considering the liability to death under which a population goes about when unvaccinated. It is, at the most, an argument against being vaccinated from an unhealthy child, and carelessly. And this is forbidden by every dictate of common sense, and by every rule that guides medical men, whether private practitioners or public vaccinators.

"Vaccination is an inconvenience."—So it is, but a very slight one compared with small-pox, which disables for work and society for two months or so, with the chance of killing in the meantime.

"Vaccination is profitable to doctors, so they recommend it."—This is so base an objection that it does not deserve to be noticed. But we wish to make our statement thorough. The argument is as untrue as it is base. Vaccination is not nearly so profitable to doctors as small-pox is. The mildest attack of small-pox is more profitable to doctors than vaccination, and the only people that can gain anything by the abolition of the Compulsory Vaccination Act are medical men, who, however, with half-a-dozen exceptions, approve the operation as one of the most beneficent discoveries that has been made in the history of mankind. Let anybody now say whether vaccination or small-pox is the greater evil.

SOCIETY.—IX.

OPEN-AIR PARTIES, PICNICS, ETC.

DURING the height of summer the most attractive indoor amusements naturally fail to induce people to assemble together in crowded rooms with good will. Balls, concerts, and dinner-parties of every kind are apt to be regarded as an infliction rather than a recreation, and a less formal meal with congenial companions in pure air, is found more enjoyable than the most elaborate entertainment planned by hospitable party-givers in a heated atmosphere.

Garden-parties, as we have already observed, are at the present time the most agreeable and fashionable of all summer entertainments. To those who have not the means at command, in the very essential matter of a garden, a picnic is generally easy of accomplishment.

In the vicinity of most large towns, either some gentleman's seat, "show place," or other interesting feature in natural scenery, affords the desired place of meeting. Permission to make use of such spots is generally granted by the owners of the land, and the usual mode is to apply to the steward of the proprietor's household to be allowed to picnic in the grounds. The instances are very rare when such a request is denied.

When more public sites are in question, the intending host should previously "spy out the land," choose the most suitable spot, and ascertain whether any restrictions or impediments are likely to prevent the contemplated party from taking place. As a general rule, the landlord of the principal hotel or inn of the neighbourhood will be found the best informant as to the necessary measures to be taken in carrying out the desired plan. His interest in promoting the wishes of the intending host will, of course, consist in being himself engaged to supply the commodities in which he deals. Bitter ale, stout, soda-water, and, in most instances, the use of plates, dishes, knives, forks, spoons, glasses, and similar table requisites, are best contracted for under one charge. The plan suggested saves a great amount of trouble, the packing and conveyance of such articles being an onerous and expensive one in undertakings of this kind, and one, moreover, which few persons volunteer to undertake.

In open-air parties, by invitation, the host is subject to the same responsibilities as though he gave a cold collation under his own roof, or in the grounds attached to his house—a garden-party, in fact. Invitations should be issued in the joint names of himself and his wife, just as invitations to dinner are sent out. The time, place, and means of conveyance to the selected spot should be specified on the card of invitation. As a general rule, arrangements may be made with the railway company whose line is adjacent to the chosen site, to convey a certain number of passengers at a reduced rate. Excursion or "saloon carriages" are usually provided by the company for parties of the kind, and every facility is afforded to prevent inconvenience to the pleasure-seekers. The guests are in such cases expected to find their own conveyance to the station whence the party starts, and the host provides conveyances from the station at the end of the journey to the site chosen for the picnic. Local jobmasters and liverymen are the right people to apply to for accommodation of this kind. Mostly, however, the hotel-keeper who supplies the table requisites includes carriages to and from the station in his list of charges.

There is also an arrangement of a provisional nature which it is desirable to effect with the landlord in question, namely, with respect to the use of his house in the event of the weather not being suitable to dining out of doors. The chief drawback to open-air parties lies in the all-pervading doubt as to the weather. On this account it is advisable to be provided with a place of resort in case of unexpected change. Next to a picnic in the open air a dinner of an impromptu kind is the most amusing, and the novelty of the guests having to assist in the arrangements is generally not the least enjoyable part of the entertainment.

In order to secure the comfort of enterprising guests, the host should make ample provision for their entertainment, let the weather be foul or fair. Having done so, the cards of invitation should specify where the party will meet in the event of unfavourable weather.

The usual plan at the outset of arrangements for parties of this kind is for three or four persons to form themselves into a committee. The first point to ascertain is the number of persons to be asked to join. Having learnt how many may be expected, the next matter of importance is to settle the locality, and, if in private grounds, to obtain permission in the manner already described. The question of conveyance to and fro should also be

decided on. In all preliminary matters of the above kind the expenses incurred by the committee are borne by themselves. The guests pay only their own share of the expenses incurred for travelling, viands, wine, &c. The labour on the part of the volunteers in the service is of a purely honorary nature, and their reward is supposed to lie in the gratification obtained by their forethought and painstaking.

The mode generally adopted in dividing the expenses of the whole party is for each individual, or family, to provide sufficient provision for their own numbers. It rests, however, with the committee to state what kinds of food will be most acceptable, in order that everyone may contribute something towards a change.

The committee should draw up a list of the articles of which the dinner is intended to consist. Fowls, ham, tongue, ribs of beef, salted silver-side, fore-quarter of lamb, raised or game pies in jars, and lobsters and crabs, are amongst the dishes in most general demand at picnic parties. To these should be added fruit pasties, cheesecakes, puffs of preserved fruit, sponge, plum, and pound cakes, biscuits, dinner rolls, butter, and Stilton cheese. Fresh fruit is indispensable. Strawberries, stone fruits in season, nuts, &c., to which should be added some bon-bon crackers for the amusement of the young men and maidens at dessert. Bottled ale and effervescing beverages are usually in great request, equally so is ice. Some one should be appointed to provide a huge block of Wenham Lake ice; it can be had far cheaper in large quantities than in small. It should also be the business of the committee to employ some one on the spot to supply an unlimited quantity of water during the presence of the party. Ladies and young people generally are often inconvenienced at picnic parties from the circumstance of no adequate provision having been made to gratify their need for a refreshing and unstimulating beverage. Iced water, or water in which ice has been melted, affords the most grateful beverage. Syrup of orgeat, orange flower, or raspberries, may be added if desired. Plenty of fresh lemons are a capital addition. In the absence of these a bottle of prepared lemon-juice, and some loaf sugar, will be found always welcome.

In deciding what each family, or section of the party, shall be requested to contribute, the following rules are generally observed. The maternal heads of the party are generally expected to contribute the solid fare, such as meat, poultry, lobsters, &c. The unmarried people contribute fruit, pastry, and sweetmeats, and the gentlemen find the wine, bottled ale, soda-water, and effervescing draughts. The latter items are generally procured from one wine merchant, and the cost is defrayed by the gentlemen.

When a picnic party is tolerably large, it is a good plan to have all the provisions that can be packed the evening previous sent to the residence of the chief promoter of the affair. On the morning of the day a tradesman's cart—the greengrocer that supplies the family is the best person to apply to—should be hired to take all the hampers and parcels at one time to the place chosen. Even the ice may be sent in this way, provided it be properly packed, *i.e.*, in plenty of flannel and woollen wrappers. The usual mode of sending out ice is to cover it freely with sawdust. The only drawback to this plan is, that the sawdust requires a considerable quantity of water to remove it effectually, and water is scarce usually in country places. Before packing the ice in the cart the block should be placed under a water tap, and it afterwards should be completely enveloped in flannel. A clean old blanket is a very useful covering for the purpose. The ice should be placed in the bottom of the cart, and articles that are of a perishable nature should be placed nearest in packing. Almost everything eatable may in this way be successfully conveyed to the scene of action.

It should be understood that whoever provides the joints and other viands, provides also the usual accompaniments: thus, the fore-quarter of lamb should be accompanied by a bottle of mint sauce; lettuces and lobsters, by mixed dressing of oil and vinegar; cucumbers, by pepper; beef, by mixed mustard and shred horse-radish; and strawberries and other fresh fruits by sifted sugar. If everyone takes salt there will be a prospect of plenty of this indispensable seasoning, but if the task is left to chance the probability is that "No salt!" will be the cry of dismay heard on all sides when appetites are let loose on the tempting fare.

The best plan of conveying butter is to cut out all the crumb of fresh rolls, and fill the vacant space with fresh butter. If the rolls be cut in half, and each portion neatly filled with butter, the rolls themselves form the best butter-dish. Butter, when removed from the rolls, does not look inviting.

The first part of the entertainment on the arrival of the party at the place of destination is generally a light refreshment in the shape of cake, biscuits, wine, or iced drinks. The party then usually disperses to visit any scene of special attraction, whilst the cloth is being spread. The hour at which everyone is expected to return should be distinctly made known before separating, and those who fail to keep time should not be waited for. In the absence of the rambles, the servants of the families, if any be present (and it is desirable that some should be there) should lay the cloth under the superintendence of the chief promoter of the picnic. This is a task which people unused to the work seldom perform with intelligence; and besides, assisting in waiting at a picnic affords a great deal of pleasure to servants, and is looked upon by them as a reward for good service. Some utensil for washing spoons, forks, &c., is an indispensable addition to the contents of the cart which conveys the provisions. A large galvanised zinc bowl, or a new pail, is the most useful article for the purpose. Plenty of clean glass-cloths should also be provided.

A picnic party occasionally attracts a good many loungers and lookers-on of a doubtful class. The only way to prevent these people from encroaching in dangerous proximity to the plate, &c., is to secure the attendance of a police-officer in the grounds, within easy call, if not in sight. This protection can always be had on payment of a trifle at the police-office for especial service.

At the end of the repast all the fragments and viands left from the meal should be distributed amongst the poor. The lodge-keeper, if the picnic have taken place in private grounds, will be found the best medium for this description of gift. Wine, spirits, and bottled drinks should be re-packed, and the value deducted from the amount of the bill, if any be returned to the wine merchant, or taken at valuation by those who care to buy them afterwards.

Music is always an agreeable feature at picnic parties. Wind instruments especially are suitable.

If dancing on the grass be part of the after-dinner amusement, tea is generally in request. The easiest way of obtaining this refreshment is for some one to provide a large kettle in which water can be boiled by a spirit lamp. Tea for a large party is best made in a tea-urn. The tea should previously to infusion be tied in a piece of white muslin. At most places, however, some cottager or lodge-keeper will gladly undertake to provide boiling water at a trifling cost.

The dress worn at picnics should be of the most simple and inexpensive nature. Plain white or coloured muslins are most suitable to young ladies; barège dresses to the more elderly, and the usual morning dress for gentlemen. Very thin boots are unsuitable; they do not protect the feet from damp grass, or from the hard, pointed stones which render walking in some country roads a painful exercise.

CONSTRUCTION OF LOCKS.

II.

Tumbler Locks.—In order to attain greater security, the tumbler lock was invented. The difference between it and the back-spring lock consists in this, that the tumbler falls into the bolt so as to prevent the latter from being shot until the action of the key raises or releases the tumbler. Fig. 6, p. 221, represents one of the simplest forms of tumbler locks. As may be remembered, the bottom edge of the back-spring lock (Fig. 1, p. 221) has two notches. In the tumbler lock we are now describing there are two square notches or slots in the upper edge, which keep pace with the movement of the bolt, as the key acts upon it. The dotted lines represent the lower part of a tumbler behind the bolt, with a piece of metal or stump, marked C. When the key acts on the bolt it causes the tumbler to rise in a small arc, whilst it moves on a pivot at the other end. When the bolt is withdrawn it is kept stationary by the stump, which falls into one of the notches. The withdrawing of the bolt is prevented in like manner, when shot home, by the stump falling into the other notch. The stump, therefore, must be lifted out of the notch, and the tumbler elevated by the action of the key, before the bolt has liberty of action. The bolt will remain stationary if the bitt of the key is *not* so shaped as to enable it to effect the elevation of the tumbler to the proper point; and from this peculiarity in their construction tumbler locks gain considerably in point of security. Towards the end of the last century this kind of lock received vast improvements at the hands of Barron, Rowntree, Bird, and others. With regard to the tumbler lock now in use, it may be remarked that the first detector was made by Ruxton, whose patent bears date May 14th, 1816.

Upon the whole, tumbler locks have attained a high place among safety locks from their strength, their simple action, and from their being so little liable to disarrangement. The chief objection to them is, that an impression can be taken of the key by any person obtaining surreptitious possession of it, and who could then make from such impression a key which would open the lock. Movable bits, changeable at pleasure, have been added, so as to allow of the bitt being changed as often as considered desirable. It is, however, useless to alter the arrangement of the bits of the key unless a corresponding change were made in the tumblers, which should be in a certain position to allow of the bolt being moved. To effect this properly the lock should be removed from the door and the internal mechanism re-arranged.

In all tumbler locks made previously to the last ten years, there is one great defect, which is, that when lying at rest, the tumblers, at their bellies or lower edges, present precisely the same arrangement as the steps of the key. By feeling, therefore, the bellies of the tumblers a good idea may be obtained of the form of key that would open them. The tumblers vibrate more or less even in locks of the best construction during the motion of the key, and this defect must be provided against in adjusting the lock; if not, the stump will be caught in its passage through the

gating. A simple remedy has been provided by Mr. Hobbs. The back part of the gating is enlarged, which has the following effect:—The stump enters the narrow end of the gating, when, in shooting back the bolt, as in unlocking, the key has got to its highest point. When the bolt is shot forward, as in locking, the stump enters the gating before the key has got to its highest point, and the gating is widened to allow for the slight motion of the tumblers during the passage of the stump. The security of the lock undergoes considerable risk by the usual method of adjustment, which is to alter the forms of the bellies of the tumblers. This defect was clearly perceived by Bramah, and his principal object in constructing locks with slides instead of tumblers was to provide against it.

Mr. Bramah patented the celebrated lock (Figs. 2 and 3) which bears his name in the year 1784. The specification of the patent, published in the "Repertory of Arts," gives the following description of it:—"G (Fig. 4) represents a sliding bar or bolt, in the frame K, that hath cut in its edge six notches of any proper depth. In these notches are placed six slides, or small bars, A, B, C, D, E, F, that are sunk into the bottom of each notch, so that the motion of the bar or bolt G is thereby totally prevented, till these slides are moved some way or other to give it liberty, which must be done from their

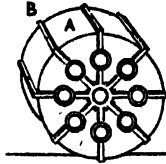


Fig. 1.

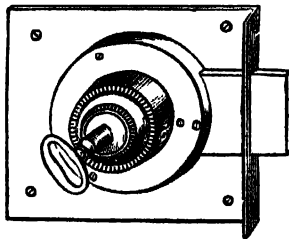


Fig. 2.

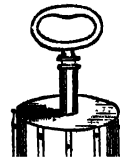


Fig. 3.

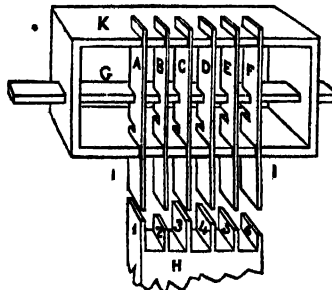


Fig. 4.

ends at I, I, as no other part of them is meant to be exposed for the purpose of moving them; which ends at I, I always have an equal projection when the bar G is set fast. Now we will suppose each of these sliders capable of being pushed upwards towards A, B, &c., to any determined distance, and when each of them has exactly received its due motion, the bar G is set at liberty, so as to slide backwards and forwards as required. Now, in order to determine the separate and distinct motion that shall be given to each, we will suppose the part H to be made; which part serves to represent a key, and the ends, 1, 2, 3, 4, 5, 6, are cut of different lengths, either by rule or by chance, so that, when pushed against the ends of the sliders at I, I, they will cause each of them to be slid up at different times, and to different distances, from I, I, in a form exactly correspondent to the ends of the part H. When they have thus received their correspondent position, and their ends at I, I form a complete tally with the part H, by making a notch in each slider at 1, 2, 3, &c., in a line with the bar G, the said bar will then have liberty to be slid backwards and forwards without obstruction; and, when brought into its original situation, and the part H withdrawn, the sliders, A, B, C, &c., will then fall down into their notches, and fasten it as usual; their ends at I, I will be restored perfectly even, as before, and not the least trace be left of the position required in them to set the bar G at liberty. A (Fig. 1) is a frame or barrel that moves the bolt by its turning, in which barrel or frame are fixed eight, or any other given number of sliders. B is a thin plate fixed in the lock, through which the barrel, or frame A passes, and is prevented from turning for the purpose of moving the bolt by the projecting parts of the sliders that move in the fixed plate B, till the notches in each of them are, by the application of the correspondent part of the key

pushed into contact, or in a line with plate A. At the end of each slider, in the cylindrical parts is fixed a spiral spring, which always restores them after the key is withdrawn, similar to A, B, C, &c., by their own gravity."

The important part of Bramah's lock was the central hollow part called its revolving barrel, with steel locking sliders, to receive the end of the key. On looking into this barrel, the narrow ends of the six steel sliders could be plainly seen, all radiating from the centre pin; at the end of the key there were six corresponding radiating notches, but the length of each notch was different.

In using the lock, the key was first pushed endways into the barrel, as far as it would go, when it was felt to be entering in opposition to a spring. The key acted against all the six sliders at once, but it pushed back each slider to a different distance, according to the lengths of the several notches in the key, which were just suitable for placing each one in what might be called its unlocking position; and all the six sliders being so placed at the same time, they would leave the barrel at liberty to be turned round by the key. The bolt of the lock was shot by a curious crank-pin motion, in a slot, but the key itself had no communication with the bolt as in most other locks.

The steel sliders, which were at least six in number, were lodged in as many detached grooves, cut out lengthways in the metal of the barrel, so as to allow each slider to have an independent endway motion in its own groove. The unlocking position of each slider was, when that slider was moved so far in its groove, that an unlocking notch in the outer edge of the slider came precisely opposite to the edge of the fixed steel plate, which would then allow the barrel to turn round, provided that every one of the sliders was so moved to its unlocking position at the same time. Any slider, however, which was not moved far enough in its groove would not arrive at its unlocking position; and any slider being moved in its groove beyond its unlocking position would interlock anew with the steel plate in which the barrel was inserted, and hold the latter fast.

The security of Bramah's lock against being picked depended upon the circumstance that its several sliders must, each one for itself, be pushed in so far and no farther, but the lock afforded no indication how far. It was, nevertheless, very objectionable that the sliders should be so completely exposed to view. Although it might have been concluded that a good Bramah's lock was not easily picked, by finding out its combination, yet, if a Bramah's key fell into dishonest hands, even for a short time, an impression could be easily taken, and a false key as easily made. A turkey quill, notched into the form of a key, sufficed to open a Bramah's lock, and an efficient false key could be formed out of a pocket pencil-case.

In Barron's lock a vast improvement was made by rendering the tumblers double-acting, and by combining two such tumblers. A common tumbler would only catch and detain the bolt when the tumbler was let down; but it ceased to afford any security if it was lifted beyond its contact with the bolt. Hence an ordinary tumbler-lock, with only one common tumbler, might have that tumbler lifted and kept up by a picklock, so as to leave the bolt quite at liberty, to be moved by another picklock. The double-acting tumbler would only release the bolt, by being lifted to the exact height required for releasing it, and no higher; for if the tumbler was lifted any higher it caught the bolt anew, and (by what was called an "over-lift") detained it as securely as if the tumbler had not been lifted high enough. In attempting to lift this tumbler with a picklock, there was nothing to indicate when the tumbler was lifted to its exact height, and with two such tumblers requiring to be lifted independently, each one to its own proper height, but no higher, it was difficult to conceive how picklocks could be available.

Chubb's lock was a very improved modification of Barron's, containing six double-acting tumblers combined together, and also possessing the important adjunct of the "detector." With a combination of six tumblers, it is exceedingly difficult to make a false key sufficiently accurate to open one of Chubb's locks, because each step of the key requires to be just sufficient to lift the tumbler to which such step belonged. If the step were too long the tumbler would be overlifted, and would, therefore, detain the bolt. If the step were too short, it would not lift the tumbler high enough to release the bolt; and no indication could be obtained by the trial of a false key in the lock as to which of the steps was too long or too short. The lock would be secured against unlocking by any one or more of the six tumblers being either overlifted or not lifted high enough; but it could not be ascertained which tumbler detained the bolt, or which step of the false key was incorrect. In such a state of uncertainty, all attempts to rectify the inaccuracy of the false key must be directed by mere guess, and alterations were as likely to be made in the steps which were nearly correct, as in those which were wrong.

It was formerly thought that a skilful workman, furnished with impressions taken from the true key, in wax or soap, could make a false key to open any lock. And, so far as all common locks and Bramah's locks are concerned, this is quite true. But as to a lock with six double-acting tumblers combined, a false key made ever so carefully, according to impressions, would not be likely to open the lock, for want of exactitude in the lengths of the several steps. Then again, if the key could not be brought to perfection from the impressions, there would be no chance of rectifying it by trial in the lock, on account of the total uncertainty as to which part required alteration.

Chubb's "detector" being combined with the six double-acting tumblers, added very greatly to the security of the lock, for in the course of making trials with a picklock, or false key, if any one of the tumblers were lifted too high, it overset the detector detent, which, by a spring action fastened the bolt, so as to secure it from being afterwards withdrawn; and although the bolt should be released from all obstruction by the other tumblers, the fastened tumbler would of itself continue to hold the bolt, as an additional detention, not capable of being removed, even by an ordinary application of the true key, which would not go round in the lock, after the detector was brought into action. Notice was thus given that a fraudulent attempt had been made to violate the lock. To set the detector free, the true key required to be first turned partially round, in a reverse direction, whereby the detector was restored to its quiescent position, and then the true key would operate in the usual manner. It was only by overlifting any one or more of the tumblers, that the detector could be brought into action, and the use of the true key could never overlift any tumbler, or disturb the detector.

In making a false key, the bitt was usually left rather too long, being gradually reduced by trial until the proper length was attained. Though this process might succeed with a common lock, it has no chance with Chubb's lock, because detection would immediately follow upon one trial with a false key, which had even but one step too long. If, on the other hand, a step were too short at first, it would be very difficult to give it the precise length required. Hence the maker of a false key was beset with difficulties at every stage of his operations, and without tolerably accurate information respecting the true key, it was scarcely possible to find out the combination of the six tumblers, or to avoid bringing the "detector" into action.

Upon the whole, it may be maintained that the true principles of perfect security, namely, strength, simplicity, and durability, should be combined in every good lock. Perfect security is the principal point to be attended to,

as without it no lock can be considered as answering the intended purpose. The works of a lock should in all cases possess strength, and be well adapted, especially in the larger ones, to resist all attempts to force them open; and both in the larger and the smaller kinds, the works should not be susceptible of injury or derangement from attempts with picklocks or false keys. Simplicity of action is requisite, so that any person having the key, and being unacquainted with the mechanism of the lock, should not be able to put it out of order. The workmanship, materials, and interior arrangements of a lock should be so combined as to insure the permanent and perfect action of all its parts, and its durability under all ordinary circumstances.

Perfect locks are, in our opinion, those which satisfy the above conditions in every respect, even in the most minute points.

COOKERY.—LXXXV.

FRENCH DISHES, ETC. (continued from p. 243).

Hure de Cochon (Pig's Head).—Remove the bone from a pig's head without taking away the skin. Line the inside with fat bacon and truffles, and season with salt, pepper, and spice. Add some parsley, chives, and a little sage, cut in small pieces. Then fill up the inside of the head with the brains, the pig's tongue, a *langue de veau à l'écarlate*, some pork fat, bacon, and truffles, cut into strips, and so mixed that when the pig's head is cut up the slices shall have a mottled appearance. Arrange the pig's head as far as possible in the natural form, and sew it up in a white linen cloth, not larger than necessary to cover it. Now break up the bones into pieces, and put them, with the pig's head, into a saucepan, with some pieces of pig-skin, sage, thyme, basil, bay-leaves, parsley, and chives, and season with salt, pepper, and cloves. Simmer the meat until it is done. This may be known by passing a skewer into the meat, which it will enter readily when sufficiently cooked, the usual time required for this purpose being about eight hours. When the pig's head is sufficiently cooked, remove the saucepan from the fire, but let the head remain in it until the liquor is so far cooled that it does not scald. Then take out the head, press it to expel any liquor that it may have absorbed, and allow it to become cold.

Fromage de Cochon (Pig's Head made in the Shape of a Cheese).—Remove the bones entirely from a pig's head; remove the flesh without injuring the skin. Cut the meat in pieces, separating the fat from the lean, and also the ears in a similar manner, and mix them with thyme, bay-leaves, sage, and parsley, cut as fine as possible. Add also the grated rind of a lemon, with its juice, and season the whole with salt, pepper, spices, and nutmeg. Place the skin of the head on a dish and arrange the meat upon it, mixing the fat and lean together. Add to it some pork fat, a tongue dressed *à l'écarlate*, and also some truffles cut in strips. When the skin is filled, arrange it, and sew it round to close it. Now place it in a saucepan just large enough to hold it, and put with it some vegetables, spices, salt, and pepper, together with equal parts of water and white wine, and simmer it at a moderate heat for six or seven hours until done. Take the saucepan from the fire, and let the meat remain in it until almost cold. Then take it out, put it in a mould or iron saucepan, and place a wooden plate with a heavy weight on it, to squeeze the head and flatten it into the form of a cheese. If preferred, *fromage de cochon* may be prepared with the ears alone. For this purpose they are cleaned, cut in two pieces, seasoned, and stewed in white wine. When cooked sufficiently, they are arranged in a mould, with alternate layers of sliced tongue, prepared

à l'écarlate, and previously cooked. The whole is then pressed out as flat as possible.

Cervelas (Bologna Sausage).—Take some tender and streaky pork, chop it up with parsley and chives, and season with salt, pepper, and spices. Fill a large sausage skin with the mixture, tie the ends securely, and cook it for two or three hours.

Cervelas à l'Oignon (Bologna Sausage with Onions) is prepared in the same manner as *cervelas*, some onions, cut in small squares, simmered in lard until three parts cooked, being added to the other materials.

Fromage d'Italie (Italian Cheese).—Cut in pieces the liver of a pig or calf, and bruise it in a mortar; then proceed in the same manner with two-thirds of bacon and one-third of pork fat, so that the weight of the bacon and fat may equal that of the liver. Mix the materials together, and season them with salt, pepper, spices, chives, thyme, basil, and sage, chopped up small, and coriander and aniseed bruised in a mortar. Then cover the bottom of an iron saucepan or mould with slices of bacon, place the meat on it, and lay more slices of bacon over it. Put it in an oven to cook. When done take the vessel from the oven, and allow it to become cold. Then place the vessel for a moment in boiling water to melt the surface of its contents, and empty it out on a dish in a cheese-shaped mass.

Boudins Noirs (Black Puddings).—Take a sufficient quantity of onions, peel them, and cut into small square pieces. Fry them in lard until they become soft, without being browned. Chop up, also, into small squares as many pounds of fat as you intend to employ pints of blood. Mix all these materials together, with some parsley and chives previously cut small, and also with salt, pepper, and cream. Fill some skins with the mixture, taking care that no air is left in the skins, and tie them securely. Then place the black puddings in water so hot that the hand cannot endure it, but yet not boiling. If care is not taken to attend to this, the sudden heat will burst the black puddings. When the puddings have become hard, and no blood escapes when they are punctured, remove from the water, and allow them to drain and get cold.

Boudins Blancs (White Puddings).—Boil some milk with bread-crumbs until it becomes a thick paste. Then cut some roast fowl very small, and also cut some pork fat in squares, beat it in a mortar, and mix it all together with boiled bread. Equal parts of bread, fat, and roast fowl should be employed for this purpose. Then take some onions, cut them in squares, fry in lard until they are soft, and mix with the other ingredients. Add also some yolks of raw eggs to thicken it, and season with pepper, nutmeg, and salt. These puddings are cooked like black puddings, in water made as hot as possible without boiling. Sometimes *boudins blancs* are made with the flesh of hares, pheasants, partridges, veal and other meat, instead of fowl.

Saucisses Rondes (Round Sausages).—Remove the sinews and skin from some pork, and chop it into mincemeat with the same quantity of pork fat. Season with salt and pepper, and add parsley, chives, basil, and thyme, cut as small as possible. Mix these ingredients together, and put them in the well-cleaned intestines of a fowl.

Andouilles à la Béchamel (Chitterlings with Béchamel).—Cut some breast of pork in slices, and also a calf's crow (the fat round the stomach), with some pork fat and lean bacon. Season the meat with salt, pepper, nutmeg, and powdered coriander seeds. Then boil down some spoonfuls of béchamel with bread until it forms a thick paste, and put the meat in it, with the yolks of five or six raw eggs. The composition is then placed in skins, as directed for *andouilles de Troyes*, and dressed in a similar manner.

Jambon (Ham).—Remove some of the saltiness from a

ham by steeping it in cold water. The time during which it should be allowed to remain in the water will depend on the season, and also on the saltiness of the ham, which may be ascertained by piercing the centre with a skewer. Then tie the ham in a cloth, and boil it for six hours at a moderate heat, with onions, into which a few cloves have been inserted, carrots, parsley, thyme, chives, and similar herbs. When the ham is sufficiently cooked, which may be learnt by piercing it with a skewer, which, when the meat is done, will enter it easily, take it from the pan, and allow it to get cold. Then remove the skin, and cover the ham with bread-crumbs, and parsley cut up as small as possible.

Jambon de Bayonne (Bayonne Ham).—Compress a ham under a board loaded with a heavy weight for twenty-four hours, or longer if the season will allow. Cover it with one part of saltpetre and twelve parts of salt; again put the board on it, and replace the weights, and then let it remain for three or four days. Then make a pickle of wine and water saturated with salt, and boiled with thyme, sage, bay-leaves, juniper, basil, coriander, aniseed, and pepper. Decant the clear liquid, and allow it to become cold, and then pour it over the ham, placed in an earthen or wooden vessel, so as to entirely cover it. Now add a few more handfuls of salt, and leave the hams in it for a fortnight or three weeks, according to the season. Then take the ham from the pickle, and allow it to drain. When dry, smoke it occasionally for three or four days, in the manner directed for *langue de veau fourrée*.

Jambon à la Mayonnaise.—Prepare a pickle of the following ingredients:—Four pounds of salt, half a pound of saltpetre, one pound of moist sugar, dissolved in a sufficient quantity of water, and one ounce of sweet-flag enclosed in a bag. Boil the whole for half an hour, and allow it to cool. Then pickle the ham in it for three weeks, and dry it in the manner previously mentioned. The tenderness of the meat will be increased if it is soaked for a day or two in spring water before putting it in the brine.

Jambon aux Épinards. (Ham with Spinach).—Take a large slice of boiled ham, and having cooked with butter, in a stewpan, a carrot, two onions, parsley, and thyme, cut in pieces, and seasoned with pepper and nutmeg, add the meat to them. Pour into the stewpan some stock broth coloured with burnt sugar, and a glass of wine, and simmer until the vegetables are nearly done, strain off the liquor, and having put the ham in another pan, pour the strained gravy over it. Put the pan over a slow fire, place the lid on it, cover it with some hot cinders, and occasionally pour a spoonful of the gravy over it, that the ham may become glazed on its upper surface. Now blanch some fresh spinach, season it with salt and pepper, pour the gravy from the meat over it, and lay on it the slice of ham, with the glazed surface upwards.

Échine de Cochon Rôti (Chine of Pork Roasted).—Remove some of the fat with which the meat is covered, then roast it for two hours, or longer, until thoroughly done, and send it to table either by itself or with *sauce piquante*. Before cooking this joint it should be sprinkled with salt and spices, and hung up for two or three days, or longer, according to the season.

Cochon de Lait Rôti (Sucking-pig Roasted).—Steep the sucking-pig for an instant in hot water, and when it is clean truss it, after having covered its interior with butter, mixed with pepper, salt, seasoning herbs, and lemon-peel. Score well the skin of the pig's head, shoulders, and legs; then roast it until the meat becomes crisp and brown, during which it must be frequently basted with oil.

Cochon de Lait Farci (Sucking-pig Stuffed).—Remove the bones from every part of a sucking-pig, except the head, which should be left entire. Stuff it with equal parts of bacon and veal-liver cut small, and seasoned with salt, pepper, cloves, and nutmegs, and also with some sage

and basil cut as small as possible. Lay on the stuffing some slices of ham and tongue, dressed *à l'écariote*, and cut in strips some bacon, truffles, &c. Arrange the skin over them, and bring the sucking-pig into as natural a shape as possible, and then enclose in a linen cloth, with some slices of bacon, and basil and sage leaves. Put it in a pan with some stock broth, salt, and pepper, and dress it at a very gentle heat. Then allow it to get sufficiently cold in the vessel in which it is cooked so that it may be compressed between the hands, to force out the liquid inside it. Then allow the sucking-pig to get cold, and remove the cloth before sending it to table.

Cochon de Lait en Blanquette.—Cook in butter in a stewpan some mushrooms cut in strips, with parsley, chives, bay-leaves, and thyme. Put in afterwards with them two shallots and a little flour. When done, pour in some stock broth and a little white wine, and season with salt, pepper, and nutmeg. Boil the liquor down to half, and put in some cold roasted sucking-pig cut into strips, and make them hot without allowing the contents of the stewpan to boil. When ready for the table add three eggs beaten up to thicken it, and also a spoonful of verjuice, or the juice of a lemon.

Cervelas à l'Italienne (Italian Sausage).—Cut up four pounds of lean pork with one pound of fat. Season the meat with mixed spice, salt, coriander seed, and aniseed bruised, and add to it as much pig's blood and white wine as is required to bring it to the proper consistence, taking care not to render it too moist. Then cut some strips the thickness of the little finger from the most fleshy part of a calf's head, mix them with the chopped meat, and put the materials into sausage skins. Tie the ends securely, boil them, and afterwards dry them in the smoke of a wood fire until they become hard.

Petit Salé (Pickled Pork).—Although every part of the pig which is thin and streaky is fit for converting into pickled pork, yet the fillet and breasts are the portions best adapted for this purpose. The meat is to be cut into pieces, and laid at the bottom of an earthen pan, on a layer of crushed salt, packing them as closely together as possible, and cover them with a mixture of fifteen parts of salt and one of saltpetre. Lay on the top a cloth folded into four, and a round board, with a number of heavy stones on the top. If the pork is required for immediate use it may be removed at the end of five or six days, but if it is wished to preserve it for a considerable time, it must remain longer in salt.

Saucissons de Lyon (Lyon's Sausages).—Take six pounds of lean pork—from the chine is the best—and half the weight of fillet of veal, and the same quantity of pork fat. Cut the fat in small square pieces, and chop up the veal and lean pork as small as possible, and beat them into a mass in a mortar. Then season them with ten ounces of salt, half an ounce of ground pepper, and half the quantity of whole peppercorns, and six drachms of saltpetre, together with some shallots beaten up; mix the whole together and let it remain for twenty-four hours. Wash some sausage skins with warm water, and then vinegar, and fill them with the meat, and compress it in the skin as closely as possible by means of a plug of wood, so as to force out the air contained in them, and secure the ends as tightly as possible with string. Then put them in an earthen pan, with some salt and a small quantity of saltpetre mixed with it, and let them remain for eight days; afterwards take them out and dry in the smoke from a wood fire. Afterwards boil some lees of wine with sage, thyme, and bay-leaves, and having again tied the ends of the sausages with fresh string, dip them in it, and again dry them. When perfectly dry, wrap them in paper, and keep them in a dry place.

Langue de Cochon Fourrée (Preserved Pig's Tongue).—This is prepared in the manner directed for *langue de veau fourrée*.

BUILDING SOCIETIES.

II.

THE profits of building societies, which supply money for working expenses and form a reserve fund against contingencies, and which are occasionally divided amongst the members in the form of a bonus, arise from several sources; viz., from fines levied for unpunctuality in payment of subscriptions, from a trifling commission on loans, from entrance fees, from the difference between the monthly realisation of interest from borrowers and the yearly rate paid to investors; but chiefly from a higher scale of interest being charged to borrowers than that paid to investors. In all societies two scales of interest are taken as the basis of calculations. In many of those established in and around London seven per cent. is taken as the rate for the borrower, and five per cent. as that for the investor, and it will be seen that between these a wide margin for profit is left. In some societies the profits are divided among the investors only, in others among both investors and borrowers.

We shall be best able to show the extent to which a connection with one of these institutions may be found beneficial, by giving one or two illustrations. Our first example, which relates to a terminating society, we extract from Mr. Morris's Prize Essay. In the society in question the shares are fixed at £25 each, payable by fortnightly subscriptions of 1s. per share. "This society will terminate when the payments of the members, with the accumulated interest, premiums, and profits, reach that amount per share, which is calculated to take place in fourteen years, though the experience of similar associations has proved that a much shorter period will be sufficient. A person renting a dwelling-house at £20 per annum for a period of fourteen years has, at the term of his removal, paid £280 as rent, *without acquiring any interest in the house itself*. But the same person, being a member of this society, might, by laying out an additional eight shillings yearly, purchase the house, the saleable value of which would be £200. To enable a member to borrow this sum from the society, he takes eight shares, which amount to £200. For this sum he pays at the rate of 1s. per fortnight on each share, £10 8s. annually, with £10 of interest, making his full yearly payment £20 8s. Hence his annual payment is only eight shillings more than he would as tenant be obliged to pay in the shape of rent, while on the lapse of fourteen years the property is his own."

Let us now suppose that a working man, who is able to save ten shillings per month from his wages, wishes to join a permanent society. He does so as an investor, and subscribes his ten shillings per month for three years, when, with interest and bonuses, his savings will have amounted to at least £20. He then thinks of building, withdraws his £20, and becomes a borrowing member for a £100 share. With the £120 now in his hands he can build himself a cottage, and his monthly payment, which will be 16s. 6d. to the society, will not exceed a fair rent for it. In sixteen years his payments will cease, and the house become his own.

INVESTORS' TABLE.

To accumulate £100 in the undermentioned periods:—

Monthly Payment of	Quarterly Payment of	Yearly Payment of	Single Payment of	Will secure £100 at the end of
£ s. d.	£ s. d.	£ s. d.	£ s. d.	Years.
1 10 0	4 10 6	17 16 0	78 7 0	5
1 9 6	3 11 6	12 1 6	71 1 4	7
0 13 3	1 19 9	7 16 6	61 7 10	10
0 10 0	1 11 6	6 3 7	55 13 8	12
0 10 0	1 10 0	5 18 0	54 7 0	12½
0 8 6	1 5 6	5 0 4	50 10 1	14
0 7 20	1 3 6	4 11 2	48 2 0	15

BORROWERS' TABLE.

An advance of £100 may be liquidated in the undermentioned periods:—

Monthly Payment of	Quarterly Payment of	Yearly Repayments	Will pay off £100 in
£ s. d.	£ s. d.	£ s. d.	Years.
1 19 0	5 17 0	23 0 2	5
1 9 6	4 8 6	17 8 1	7
1 2 0	3 6 0	12 19 8	10
0 19 6	2 18 6	11 10 1	12
0 17 6	2 12 6	10 6 6	14
0 16 6	2 9 6	9 14 9	16

The examples just now given require little comment, and the foregoing tables, which are given upon the authority of a trustworthy country society, show the reader at a glance the rate at which the savings of an investor will accumulate, or the liabilities of a borrower be liquidated.

In some societies it is required that before a member is eligible for an advance he should, for a certain time, have been an investor; in others he can receive a loan at once. On first joining, an entrance-fee has usually to be paid—generally, in permanent societies, of about 2s. 6d. per share; and regularity in the payment of monthly subscriptions is enforced by small fines. In some societies, however, provision is made to suspend fines for non-payment in cases where sufficient cause can be shown, or, if necessary, to lessen the rate of payment by extending it over a longer space of time. A member can at any time withdraw his subscriptions, or sell or transfer his share to another person; and after giving notice of withdrawal, a member is no longer considered in law to be responsible for the society's acts.

In case of death, a member's interests in the society go like any other property, to his heirs, and not to the surviving members. Subscriptions paid into a building society are, therefore—unlike those paid into an ordinary benefit society—an actual investment, and can at any time be realised; and it thus offers the advantages of a savings' bank with nearly twice the amount of interest paid by one of those institutions.

Indeed, the advantages of a soundly-constituted and well-managed building society are obvious and undeniable; and so important have the actual results been found, that they have led to exaggerated views on the subject. Many persons have believed that impossible results might be expected from them, and have been readily duped by the prospectuses of societies which were based upon calculations capable only of leading to failure and ruin. It is most necessary, therefore, that every person, before joining a society, should thoroughly convince himself that it is sound and trustworthy, and that it does not offer a higher rate of interest than is consistent with its stability; and he should satisfy himself as to the character and capacity of those engaged in its management. The fact of the rules of any society having been certified by the barrister appointed to examine the rules of friendly societies is no criterion by which to judge of the soundness of a society. That gentleman has merely to declare that the rules of a society are in accordance with the law; and it is quite possible that, while strictly consistent with legality, the rules of a society may be such as will inevitably lead to failure.

In another article we shall explain the law relating to benefit building societies, and give some further useful information.

CONSERVE OF LAVENDER FLOWERS.—Beat up the fresh flowers in a stone mortar with three times the quantity of loaf-sugar into a thick paste, and preserve it in a well-closed vessel.

GARDENING.—LIV.

GARDEN PESTS.

THE pleasures of the possession and culture of a garden, are frequently greatly curtailed by the annoyance caused by the depredations of various insects and fungi. The object we have in view, is to enhance the pleasures of our gardening readers, by pointing out the first symptoms—not always noticeable by an unpractised eye—of the attacks of these pests; to describe the best remedial measures to be taken for their eradication; and, as prevention is better than cure, to advise the course of cultural treatment calculated to reduce the liability of the attacks to a minimum.

We will speak first of what are generally called ground vermin. Slugs and shell snails are chiefly troublesome, the former in gardens that adjoin low-lying, wet meadows, and the latter in small, confined gardens that are much overshadowed by high walls or trees, and in gardens in which there is a considerable growth of perennial-leaved, low-growing, herbaceous plants, such as the "periwinkle," the common blue flag, houseleek, stonecrop, and also ivy, in and among which the snails harbour, although they do not feed on them, coming out at night to feed on the young, tender growth of other plants. Heaps of flower-pots, or any lumber lying in damp, shady corners, will also shelter them in great numbers. Their mischievous acts easily and readily bear witness against them to an observant gardener, in the mutilated young leaves of plants of a humble growth, and of plants growing on walls. The remedy is a thorough removal of all dead matter calculated to conceal them, including the frequent removal of dead and dying leaves of living plants, so as to ensure the admission of all the light and air possible, and the persistent search in the *daytime* of all irremovable harbours. The simplest method of destroying them is to throw them into a pail or other convenient vessel, and at the end of each hunt, throw two or three handfuls of salt on them: this is certain death.

The depredations of the slugs, or shell-less snails, are very similar to the last-mentioned, and as easily discoverable, their chief mischief being perpetrated among the young crops in the kitchen-garden, lettuces and all plants of the cabbage tribe being especially favoured by them. On finding a crop attacked by them, the best thing to be done is to sprinkle newly-slaked lime on the ground among and around the plants, or as a substitute for the lime, wood ashes, or any dust in a perfectly dry condition may be used. Whichever of these materials is used, it must be renewed as often as it gets wet, until the plants get larger and stronger, as they seldom attack plants to any extent except in the young state. If they are troublesome in the pleasure-garden, where the appearance of lime or any similar material would be objectionable, they may be caught by laying traps of lettuce-leaves, or cabbage-leaves, slightly greased on the under side; they will leave almost anything to feed on these baits. They must be searched for an hour or two after dusk, and again at daybreak, and when caught they may be destroyed in the same manner as the shell-snail.

Among the most destructive and troublesome of the ground insects are the grub or larvæ of the crane fly—"daddy long legs." They harbour just under the surface of the ground, are about an inch in length, of a dull, earth-brown colour, and, with skin of a leathery texture, defy the effects of any chemical treatment that does not also destroy the crop. Their proceedings—chiefly carried on at night—are by eating through the stem of the plant just at or under the ground line, utterly destroying the plant. The mischief is not always immediately visible. In dull weather a plant will retain its erect position, and an appearance of health for a day or two, but at the first burst of sunshine it will collapse. We have no means at our

command for the destruction of these grubs except hand-picking and crushing them. When a crop is seen to be attacked, every plant in the crop should be searched by working the finger in the soil round the stem. Sometimes two or three will be found at a plant. We have known lawns, and entire fields of grass, destroyed by these grubs, and the greatest blessing that can be hailed when so infested, is the location of a flight of starlings, than which no bird is more assiduous in their destruction. As a preventative measure, every means should be taken for the destruction of the fully-developed insect—the crane fly—before it has time to deposit its ova in the soil in the summer—June and July. If many of them are seen about a garden in the daytime, they will usually be found to settle for the night on the grass lawn, where they may be found in the early morning powerless to rise while the dew is still heavy; and now is the time to circumvent the enemy, by crushing them under a heavy garden-roller. Very few will be found to escape the effects of this treatment, which should be adopted as soon as any are discoverable, and continued every morning as long as they are seen about.

Another troublesome nuisance is the wire-worm, of which there are two kinds, black and white, the white being generally the most destructive. They are each about an inch or an inch and a quarter in length, having a bright, horny, shell-like skin, and a multiplicity of legs. They attack the fleshy roots and underground stems of plants. Carrots are especially liable to their attacks, and in the flower garden, pinks, carnations, pansies, and hollyhocks receive their principal attentions. The symptoms of their being at work at a plant are the cessation of growth, change of colour, and an unhealthy and stunted appearance. If the plant is not injured past recovery it may be taken up, the soil shaken from it, the injured roots cut back to a sound part, and replanted in another part of the garden. The best traps to catch these worms are carrots, thrust into the ground and examined daily, as they will leave anything for them. They will be found eating into the carrots, when they may be readily destroyed.

The best preventative measure to be taken for all these ground vermin is the constant disturbance of the surface of the soil, by hoeing, or lightly forking, as the insects are thus exposed to the keen search of the birds, who are always on the look-out, and notwithstanding some damage the birds may occasionally do to the crops, they are among the gardener's best friends, and should be encouraged rather than destroyed. Crops that are especially liable to be attacked by birds should be protected by netting, or by some contrivance for scaring them, leaving them free to pursue their natural occupation of hunting and devouring the insects in the rest of the garden.

Among insects that attack the upper growth of plants, are the green aphid, especially troublesome on the young shoots of roses; the blue aphid, that chiefly attacks plum-trees, and the black aphid, that is especially partial to the young shoots of peaches, nectarines, and apricots. The signs of their presence may be easily detected by the curling of the leaves and points of the shoots, and the remedy is, first dipping all the infested shoots into strong tobacco-water in the evening, and early the following morning forcibly syringing with clean water, using a powerful garden engine if possible, repeating the treatment at intervals of two or three days if necessary. The tobacco-water may be made by infusing one pound of good shag tobacco in two quarts of boiling water. Strain and dilute a portion at a time as required. It should take three volumes of water to one of the infusion, but as tobacco varies considerably in strength and quality, and as the infusion, if applied too strong, may kill the shoots and leaves as well as the insects, the safest plan is to dip one shoot, and wait twenty-four hours to note the result, when it may be made stronger or weaker as required.

But if the possessors of garden engines, or syringes, were to make frequent use of the implement of an evening on all subjects liable to attack by these insects, they would seldom have occasion to have recourse to curative measures.

Thrip, a minute white insect, scarcely visible to the unaided eye, eats away the cuticle of the leaves on the under side, giving them a peculiar appearance of minute white veining, visible on the upper side, and also eats the petals, or flower-leaves, frequently of the unexpanded buds, notably of the dahlia, hollyhock, and scarlet geranium.

Red spider, an even more minute insect than the thrip, also attacks the under side of the leaf, giving it the appearance of being sun-scorched, this appearance being at first visible in minute spots only, but rapidly spreading over the entire leaf; French beans, peach-trees, and major convolvulus, being peculiarly liable to its attacks. The destruction of plants by both thrip and red spider is very rapid in hot, dry weather, and the predisposing cause of their liability to attack is insufficient moisture at the roots. A few abundant soakings of water, and nightly syringing, will generally vanquish them, if they have not made too much headway. Chemical nostrums are of little or no use against these pests out of doors. Prevention by administration of sufficient water is better than cure.

American blight is a bright red insect, enveloped in a white, cottony substance, infesting apple-trees chiefly, locating itself on the wood, in which it causes a cankered appearance, destroying the health and vigour of the tree, readily discernible by the most unobservant of gardeners. The best remedy for this is scrubbing the entire bark of the tree—in winter—with hot strong brine, using a stiff brush. Its greatest natural enemy is the ladybird, an insect by the way, that should always be encouraged in gardens, as it is a voracious devourer of all aphides.

The rose grub is a small brown grub, or caterpillar, that lodges itself in the points of the young shoots of roses, eating away the flower-buds. Its presence may be easily detected by the curled leaves. There is no remedy but hand-picking. Some care is necessary so as not to destroy the young flower-buds. The ravages may in some measure be prevented by good culture in the previous season, by liberal manuring and watering, thus enabling the plants to store up a maximum amount of vigour for making their first growth—for it is, at the first seasonal growth they are most liable to attack—so as to quickly outgrow the attacks of the grub.

The caterpillars that attack gooseberry bushes and hawthorn hedges are best dealt with by liberally dusting the bushes with perfectly dry dust, and there is nothing better for the purpose than the finely-comminuted dust that may be swept up on the public roads that are formed of gravel stones, applying it early in the morning while the dew is still heavy. If this is not procurable, slaked lime, or wood ashes, may be used. We do not know of anything that will prevent these attacks.

The cabbage caterpillar is best dealt with by watering overhead with salt water, the water to be salted to such an extent as to taste about as strong as sea water, but this must be applied in dull, showery weather. Other caterpillars generally must be destroyed by hand-picking.

The turnip flea, a well-known farmer's enemy, is also sometimes very destructive in gardens, attacking turnips, and all plants of the cabbage tribe, when in the seed-leaf, the leaves appearing as if they had been punctured with pins. The remedy for this is dust, as advised for the gooseberry caterpillar. It is an unfailing remedy properly applied.

We think we have gone through the category of all the most generally troublesome of garden insects, and we have now only to treat of mildew, which is the only fungoid

nuisance that needs consideration. There are other fungoid growths that are occasionally troublesome, but they scarcely come under the head of ordinary garden pests. Mildew is especially troublesome on roses, peaches, and nectarines, vegetable marrows, verbenas, and young cabbage and cauliflower plants. It has the appearance of a thin film of white powder on the leaves, chiefly on the under side, and mostly makes its appearance in long-continued hot, dry weather. The curative remedy is flowers of sulphur, *sulphur vivum* being the best, applied early in the morning while the dew is heavy, with a sulphur duster, which may be purchased at the seedsman's for about three and sixpence, or it may be applied with an ordinary flour-dredger. Should rain follow quickly, so as to wash the sulphur off, a second application may be necessary; at the same time give copious watering at the roots. The preventative is liberal watering, and the garden engine to trees. When mildew makes its appearance in wet weather, or in the winter, it is generally ascribable to a damp, stagnant atmosphere, in which case the sulphur must be applied, and the surface of the soil, in which the affected plants are growing, and all around them, be frequently hoed, or otherwise disturbed, and dry wood ashes, or other dust, sprinkled on its surface, to absorb superfluous moisture, and every possible means should be taken to obtain a free circulation of air.

ODDS AND ENDS.

The Cherry-tree and its Fruit.—The cherry derives its name from Cerasus, a city of Pontus, in Asia, from which it was first obtained, and whence it was introduced into England by the Romans; and it is thought that the cause of cherries being more plentiful in Kent than in other parts of England is that they were first cultivated in that county. The cherry-tree usually produces its fruit at the end of the branches, for which reason they should never be shortened by pruning. Cherries when fermented yield a wine which resembles red Constantia both in appearance and flavour. When dried this fruit is excellent for puddings for winter use; and from the small black variety, macerated with spirit, is produced an admired cherry brandy. Cherry-tree wood is very hard and tough, and almost resembles oak with regard to its strength, and from its appearance was at one time much used for the manufacture of chairs, and similar articles of furniture.

The Hazel-nut Tree.—The tree that yields this nut grows wild in every part of England. Its wood is employed for fishing-rods, hoops for casks, and similar purposes. When yeast was scarce, bunches of hazel were formerly dipped in ale yeast during fermentation and then hung up to dry, and at the next brewing were put into the wort instead of yeast. Hazel-nuts are difficult of digestion, and have been thought to produce shortness of breath and other injurious effects on those who eat them, if eaten otherwise than moderately.

About Blackberries.—The fruit of the blackberry, or bramble berry, so well known from its growing on the hedges, when boiled with sugar, forms an excellent jam, useful for sore throats and slight feverishness. When the juice of this fruit is mixed with raisin wine previous to fermentation, it is said to give it the colour and taste of claret.

Cherry Brandy.—Put twenty-four pounds of ripe cherries, stoned, and four pounds of strawberries in a cask; bruise them well with a stick, and then add six pounds of sugar, twenty-four cloves, some cinnamon and nutmegs, together with the kernels of the cherry stones; pour over them three gallons of brandy. Let the cask remain open for ten or twelve days, and then close it, and let it remain for two months, when it will be fit for use.

HOUSEHOLD DECORATIVE ART. -LVII.

BEAD-WORK ON WIRE.

WHEN attached to a framework of wire, instead of the ordinary background of cloth or canvas, beads can be rendered applicable to a variety of decorative articles, either for personal use, or for the mantelshelf, the drawing-room table, or the toilette table.

For this class of work designs of a naturalistic character, and more especially leaves and flowers, are chiefly in favour, and those which we shall give in the present article will therefore be of that class; but it will also be found well suited for carrying out geometrical patterns.

For employment in the framework, tinned iron, brass, and copper wire are suitable; the two latter are perhaps to be preferred, on account of their greater neatness, their non-liability to rust, and the greater ease with which they are soldered—brass for stems, and such parts as require strength and firmness; and copper, which is most easily

light and one dark row alternate, the lines running in the directions shown in our illustration.

The background against which the three frames of beads thus made are to be placed should be of wood, covered with crimson velvet, as this would show off the green bead-work to best effect. The construction is shown in the partial section, Fig. 3. There are cross ledges of wood beneath the velvet, pierced with holes in their centres, through which the central stems of the wire frames are thrust, and thus held in place, which will enable them to be removed at pleasure, for the purpose of dusting the velvet, &c. The lower corners of the leaves may also rest upon the ledge.

Still more easily than this would be made ornaments for the hair, like the butterfly in Fig. 4. The wire skeleton of this pretty and fashionable little ornament is given in Fig. 5, and it may, as there shown, be constructed, if preferred, in a single piece of wire, and without any soldering whatever, thread or fine binding-wire being used to fasten it at

the points of juncture.

The horns may be wound either with very fine crimson beads, or with silk of the same colour, two rather large beads being fixed upon their terminations with a little cement, such as shellac, or isinglass dissolved in acetic acid. The wire which binds the wings may be wound round with gold-coloured beads, and the spaces within forming the wings may be filled up with bead net-work.

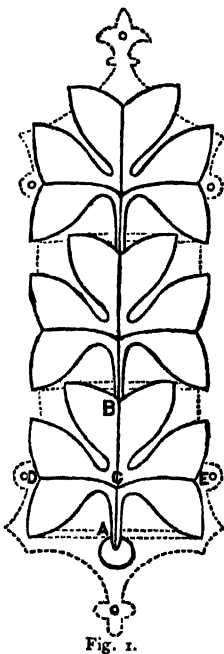


Fig. 1.

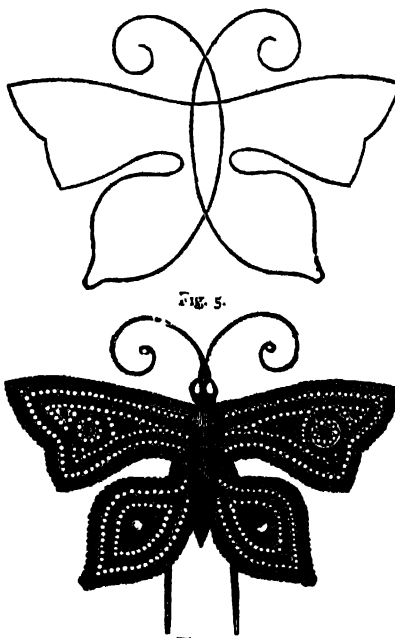


Fig. 4.



Fig. 2.



Fig. 3.

gauges, strong and fine, to suit the nature of the work. Generally speaking, a framework will require soldering together, and as instructions in this art have been given in the HOUSEHOLD GUIDE, many of our readers will be able to do this for themselves; if not, the soldering might be left to a tinman, who would complete it for a few pence, or who would, if the trouble of cutting and bending the wires were objected to, construct the whole frame from a pattern or drawing, for a trifling sum.

One of the compartments of the hanging card-rack (Fig. 1), which is shown in its finished state in Fig. 2, may be taken as a simple example. One piece of copper wire may be made to run round the whole circumference of the shamrock-leaf from A, the end of the stem, till it reaches the same point again. A straight piece of brass wire may be laid from A to B, to form the central vein, and soldered at the latter point, while two other pieces of brass wire may be laid from C to D and E, to form the lateral veins. Gold-coloured beads should be threaded and wound round the stem and boundary-wire of the leaf in a spiral manner, and the vein-wires should be wound in a similar way with dark brown beads. The spaces between the veins and boundary-wire may then be filled up solidly with rows of green beads, in which two

This may be of red beads, with the key-heads of gold, or, if it is to be worn with a dark dress, with black and gold for its colours. A spangle may be sewn where a spot occurs on the wing of the natural butterfly. Perhaps, however, the method of filling up shown in our illustrations will be still more effective. This may be either in two brilliant contrasting colours, or in black and white. The body may be cut from a strip of cardboard, and covered with dark velvet, or wound with chenille, and afterwards sewn in its place between the wings; two gilt beads will form the eyes. Our illustration shows the manner in which it is attached to the chignon or hair.

The colours which we have given for the above butterfly are such as would generally be effective, but they might be varied to infinity, to suit the taste or style of the wearer, and many other pretty and graceful ornaments might be made for the same purpose, as for instance, feathers, fern-leaves, or the star-shaped flowers so much worn at present.

A far more elaborate work than either of the foregoing is the watch and jewel stand for a toilette-table, given in Fig. 6. The base from which this arises is of wood, covered with a crimson velvet cushion to receive pins and brooches. The main stem is wound with two strings of

beads, so as to give alternate spiral lines of light and dark; these should be of a light amber and a deep chocolate. The alternate bands are not carried on to the smaller stems, but these are wound with beads of a medium colour, such as a rich, but not too dark, brown. This should also be carried through the central veins of the leaves. The thinner wires, which form the extremities of the stems are either wound with very fine beads, or with silk of the same colour. The small tendrils are wound with gold-coloured silk, and have amber beads cemented upon them. For the leaves dark green beads will form the best outline, while the space within is filled up with a lighter green, or with shades so varied as to give somewhat the effect of the natural veins and fibres, which will be gained by alternate rows.

For the large central flower which surrounds the watch, petals of a bright pink, with crimson central veins, will be effective, while the same colours may be applied to the two smaller flowers. These last form cups to hold any small articles, and the pistils in their centres, which are ring-holders, should each be surmounted by a large amber bead, cemented in its place, while another, still larger, forms its base. Some of the smaller stems will, at their terminations, serve as hooks from which to hang ear-rings, &c.

We may observe that in bead-work of this kind it will be frequently found desirable, while using very fine beads, to employ horse-hair, instead of thread, as upon this they can be strung without the aid of a needle; or sometimes very fine copper binding-wire can be used advantageously for the same purpose; and to prevent the wire of the framework appearing, some persons are accustomed to wind it, before covering it with beads, with fine silk. Generally speaking, however, if the bead-work is closely and carefully applied, such a precaution will be unnecessary, and the effect of the work will be highly pleasing and attractive.

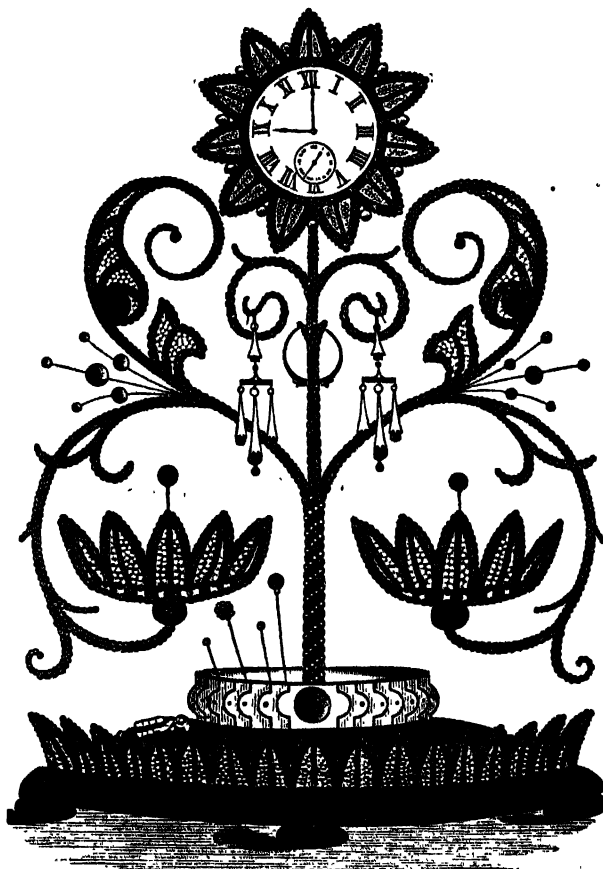


Fig. 6.

BEST SHAPE FOR NEEDLES.—Double-pointed, the name given to needles of an improved shape, does not quite express the idea to be conveyed, because, although they are slightly diminished in size from the centre of the eye, the eye-end is not absolutely pointed. The shape, however, is a great improvement, because the needle can be withdrawn from the thickest material with great ease, and the rapidity of working is increased in a considerable ratio, the slight swell in the centre of the needle easing the way. In no part is the needle thicker than the common needle, but the point and the eye-end are more tapering.

GLASS.

THE discovery of this material, which adds so greatly to the comfort and luxury of modern civilised life, was believed by the ancients to have been the result of accident. However that may be, it is certain that the Phœnicians were acquainted with the secret of glass-making in exceedingly distant times, and that they brought the manufacture to a considerable degree of perfection. It was also known in Egypt in the earliest ages, for glass-blowers are represented upon the Egyptian monuments of a period contemporary with the Exodus, or 3,500 years ago. It has been said that glass was made in our own country by the Druids, but it is more probable that the

articles in this material which were procured by the ancient Britons were brought by Phœnician traders. The Anglo-Saxons, however, possessed glass vessels, which are presumed to have been of their own manufacture. But throughout the Middle Ages, the greatest and most celebrated manufactory of glass was that of Venice, and the island of Murano, adjoining that city, is probably the oldest glass-house still in operation in the whole world. It was here that the art became at the same time beautiful and comparatively inexpensive. During the first centuries, drinking vessels and mirrors were made there only. Later they were successfully imitated in these things by the Bohemians, and in the reign of Louis IX. the manufacture was extended to France. A law was passed by that monarch, by which the erection of a glass-house, or even employment in one was forbidden to any but the sons of noblemen and gentlemen, and even in England, till a late time, the workmen thus engaged styled themselves "gentlemen glass-blowers."

All glass vessels, and even window-glass, were produced by blowing till the year 1688, when Thevart discovered the method of casting, and applied it to the making of plate-glass. His manufactory was at first set up in Paris, but soon afterwards removed to St. Gobain, in what is now the Department of the Aisne. This discovery is said to have been owing to the breaking of a glass crucible, and to the liquid "metal" contained by it flowing under a flag-stone. In England the art of making glass vessels was not brought to any degree of perfection till the time of William and Mary. Since that time we have, in spite of obstructive excise laws, which remained in force until 1845, made rapid progress; glass-manufactories on a large scale are now scattered over many parts of the British Islands, the chief seat of the trade being Birmingham. In ornamental glass we are able to rival the Bohemians, though not the Venetians.

Descriptions of Glass.—All the different varieties of glass may be divided into two classes—simple glass, which comprises crown, plate, and bottle glass, and compound, which comprises flint and coloured glass, and is made with an admixture of some metallic substance. In coloured glasses, the different hues are obtained exclusively from oxides of the different metals, and flint-glass derives its peculiar qualities from oxide of lead, red lead being the form in which it is usually employed.

Composition and Manufacture.—The general ingredients in the composition of glass are silica and alkali, but these are used in different forms and proportions for the manufacture of the different kinds of glass, and there is also occasionally some slight admixture of other substances. Flint-glass, the variety of which we have chiefly to speak, since from this are made all kinds of table-glass, as well as optical lenses, chemical glass instruments, and a long list of similar matters, is composed of a fine, white, siliceous sand, brought chiefly from Lynn, in Norfolk, and from Alum Bay, in the Isle of Wight, fused with good alkali and a proportion of oxide of lead; a small quantity of black oxide of manganese is also usually added. This last helps to clear the colour, and is therefore called “glass-maker’s soap.” A large proportion of it would make the glass lilac. The sand is calcined, and sifted through lawn sieves, but is first well washed. Isle of Wight sand is said to require eight waters to cleanse it. A fine sand for glass-making is brought as ballast by vessels from Sydney, in Australia. Instead of sand, calcined flints were originally used in making flint-glass, hence the derivation of its name. To the oxide of lead are to be attributed the qualities which give to flint-glass its superiority for the purposes to which it is applied. It gives to it a strong power of refraction, and renders it dense and soft. This glass may be blown so thin as to float in the air, and a small lump may be drawn out to a thread several hundred feet in length. It is easily cut and polished, and at a red heat it may be welded by contact, which is a valuable quality, when handles, feet, or similar parts have to be attached. The materials are fused in closed crucibles, specially made for the purpose, and which are about forty inches in depth, the same in width, and three or four inches thick. These crucibles have to be placed in an intense heat, and after about forty hours’ exposure, their contents melt, and a white scum, consisting of salt and other impurities, and known as “glass gall” rises, which has to be wholly removed. When the fusion is complete, the glass is allowed to cool till it has attained a proper consistency. The glass-blower then takes up a sufficient quantity of the material, which is technically known as “metal,” upon the larger end of an iron tube about five feet in length, and increasing in diameter from half an inch to an inch. Through this he blows till the lump of glass becomes a hollow globe; this he heats at the furnace, and again blows it larger. It is then rolled upon a flat cast-iron table, called a “marver,” cut into the required shapes, and afterwards annealed by the trays containing the articles passing slowly through a furnace, the part in which they are first placed being comparatively cool, from which they are gradually moved onwards to an intense heat, and afterwards, receding from this, they become gradually cooler, and are removed from the opposite end of the oven. Annealing is resorted to for removing the extreme brittleness of the glass.

Common articles are hence made instead of cut; when blown the globe of “metal” is pressed into a mould, and the required shape given to it in this manner. In this way flint-glass bottles are formed, the mould used being of brass. Mould glass is, however, far inferior to cut; it is heavy and disagreeable to the touch, and clumsy in appearance, its chief merit being its extraordinary cheapness.

Patterns are cut upon decanters, &c., by means of

revolving wheels, the first being of stone, and those afterwards used, of iron, covered with sharp sand or emery. Against these the glass is held tightly, while a stream of water is allowed to flow between to prevent heating by friction. Polishing is accomplished afterwards with putty or oxide of tin. A coating, or “flash” of colour is sometimes given, by the blower dipping the ball of white “metal” into a pot of coloured glass. He then blows the two together, and facets are frequently cut through the coloured film to the white substratum beneath. This is a common method of decoration in Bohemian glass. The method of producing the beautiful frosted surface, which was a secret of the old Venetian glass-blowers, has been re-discovered by Mr. Pellatt. It consists in dipping the blown vessels, while still hot, in cold water, and again heating and blowing them. Enamel is merely glass rendered opaque by admixture of oxide of metal with a flux. For the white enamel of dial-plates, oxides of tin and lead are used.

Crown-glass is composed of about the proportions of—sand, 5; ground chalk, 2; carbonate of soda, 1; and sulphate of soda, 1. Unlike flint-glass, the simple glasses are fused in open crucibles, that the fire may have access to them, which cannot be allowed with compound glasses, as the oxides of metal would be deoxidised by the smoke and fire. When the materials are properly fused, the blower takes a lump of metal upon his tube, as we have before described in speaking of flint-glass; when the ball is in a pear shape, he presses the flat end on a table, heats and whirls it round, and thus spreads the bottom. Another workman takes melted glass upon a rod, and with this touches the bottom, which becomes attached to it. The first workman then severs the glass from his blowing-tube by touching it with a piece of cold iron dipped in water, which causes the glass to crack. It is then held by the rod in the furnace, heated, and again whirled till it flies open in a disc, with a noise like that caused by quickly opening a wet umbrella, and technically called “flashing.” The place to which the rod has been attached is the thick boss known as the “bull’s-eye.” It has afterwards to be annealed. Sheet-glass is at first blown upon the tube as a hollow globe, but this, by heating and rolling on a table, is converted into a cylinder, which is cut open by shears and laid flat. Sheet-glass cannot, on account of the weight of the cylinder, be made very large, fifty inches in length, with a proportionate width, being its extreme dimensions. If larger than this it would become too thin.

Crown-glass was till within the last few years the kind in common use for windows; but the circular shape of the pieces in which it was made, with the useless “bull’s-eye” in the centre, involved great waste in cutting it into squares; and sheet-glass which, being formed of cylinders cut open, is in rectangular pieces, and can be cut without waste, has now all but superseded it. Our own manufacturers are unable to compete in point of cheapness with those of the Continent in this article, and great quantities of common window-glass, ready cut into squares, are now imported from Belgium. The old common crown-glass, which we still see in the form of small quarries in the windows of old houses, owes its green colour, which is so pleasant to the eye, but disagreeable to see through, to the impure materials of which it was made, and which contained oxide of iron. The former prevalence of this over white glass resulted from the lower duty charged upon the green, which was considered by the legislature to be made for the poorer classes.

Plate-glass contains more soda, and is, consequently, softer than crown. It is fused in a vessel called a “curvette,” which is brought by a crane to the edge of an iron table surrounded by a low ledge, and the glass being poured out on this, is smoothed by a hot roller. It is

afterwards ground quite flat, with flint-powder and emery, and polished with *Crocus martis* (sesquioxide of iron). To attain perfect flatness, two plates are ground together, then reversed, and the other sides ground. It will thus readily be seen that plate-glass may be made to any size and thickness required, whereas crown and sheet glass are, as regards size, limited by the method of manufacture.

Common bottle-glass is made of sand, 100 parts; soaper's waste, 80; gas lime, 80; common clay, 5; and rock salt, 3: the green colour is owing to the iron in the materials. Glass bottles, instead of being simply blown, are now generally cast in moulds; large round ones, however, are blown without moulds, and the enormous carboys used to contain sulphuric acid, &c., are made in the following ingenious manner: a mouthful of water is squirted by the blower into the globe of metal, the tube is then stopped, and the glass heated; the generation of steam within then distends the glass to the required size.

DRESSMAKING.—II.

SKIRTS AND MANTLES.

The Skirt.—We will speak first of making gored skirts, as they are of the kind now in use. We will first treat of narrow-width material, such as a silk, &c., from twenty to twenty-seven inches wide. Short and long skirts are cut alike; the difference is only in the number of widths and in the length. Having ascertained your length, before and behind, allow the side widths of intermediate length, and commence cutting. Take off the front breadth. There are two ways of cutting this. Fig. 7 is the best way, and is usual for silk dresses. A piece is gored off each side, reducing the top to eight inches wide. The second way is to gore the width in half, like Fig. 9, allowing five inches to the narrow part. Place the straight sides of these gores together, and run them on the right side. Then make an inch-wide fold, tack it down, and secure it with buttons, making little holes through the stuff, letting in the shanks, and fixing with a ring or bit of metal behind. This economises the stuff, but is not so suitable for a handsome silk dress (see Fig. 10).

You now cut off all your widths to gore them. Divide them in half, for right and left sides. Many persons fall into the error that a gored breadth can be placed half on each side. So persons will cut two left body fronts or two right sleeves by neglecting to turn the pattern. If the material be the same both sides this does not matter, but it very seldom is. Both the gores cut from Fig. 9 must be used on one side, those from Fig. 8 on the other. The gores which come on the hip must be sloped away, about an inch in width, and two to three inches long at A (Fig. 8), to give them a nice rounded sit, as shown by the dotted line in the figure.

Pin each breadth of the gored skirt, respectively, together, and run it with the side on the cross next you. Keep it even, but do not strain it. Allow it an inch longer than you want, as it takes up in working. When the seams are done, lay the skirt on a table and cut off the bottom even, rounding it well. The pieces come in for pipings and trimmings. Now cut the breadths of the lining for the hem. If for a long dress, Victoria lawn is best; for a short skirt, lawn or alpaca is preferable. Line a short dress five or six inches up; a long dress, especially if a silk, about half a yard deep. Run the lining on the wrong side to the edge of the skirt; turn it over; tack it down one inch. Lay the skirt across the table. Pin down or tack the lining, sloping it as required. Turn in the top as you go. Run it as it lies on the table for a short dress (which is always trimmed) or a trimmed long dress. If the trimming will not cover the lining of a long dress, tack it well to every seam, up the seam, and catch it here and there lightly along the top, not showing the stitch more than can be avoided.

Now lay the skirt on the table on the right side, and adjust the trimming. If flounces, pin them on close together and afterwards run them over the hand. If a plain trimming, lay it on straight, even, and light. Catch it with a pin here and there; then, with very fine cotton, tack it lightly along. Afterwards run on the trimming by hand. A ribbon, lace, or insertion round a skirt requires only to be run at the top, aslant, or on the body or sleeves; both edges generally need fixing. You must judge of this.

Short dresses should be from two and a half to four yards wide. Place at the back of all one plain width, or even two if the size round makes it fall in well. Walking dresses quite clear the ground at present, but dinner and evening dresses are made with trains; dresses for intermediate wear, with a graceful, but not a long train. A long silk dress will take one front breadth (sloped each side), four gores each side, one plain back breadth. If very long, two plain breadths may be used. This is for silk from twenty-two inches to twenty-four inches wide. Very narrow silk does not gore to look well for a long dress, though in a short skirt there is no objection to it.

Petticoats may be made like dress skirts, and if gored should have a false plain hem. Some are made plain. They are not worn as wide round as formerly, especially if much ornamented. Petticoats should at least be made with tucks. Three yards round is sufficient. They ought to be put in sloping bands, like those already mentioned. Many petticoats are set in a round band to slip over the head. Such a band should also be shaped to fall to the hips. It only wants the slope where it joins in front made two or three inches deep, and should be just large enough round to slip over the head. Across the top of the back, from hip to hip, run it so as to hold a tape. Button-hole the eyelet-holes each side for it. Cut the tape in two pieces. Sew the end of each inside the band under the button-hole, and run them into the band, one to the right, the other to the left, crossing. Put the front of the band under the stay-hook, draw the strings, and tie the ends also under the hook. There is no placket-hole to the petticoat in this case. To get the right slope in the skirt, make and put on the band alone, and when the petticoat is gathered at top, pin it to the band, and regulate the length. If this be done with one, others can be cut from it. Petticoats are gathered at the waist a little fuller behind than at the hips, and are plain in front. Coloured under-skirts are made like dress skirts. Some thrifty persons cut off the half of an old skirt, and add new material only half up, thus saving fifty per cent. of the expense. It is not a very tidy practice, but is excusable with very narrow means. Of flannel petticoats it is scarcely necessary to say much. Two yards round is wide enough. Run and herring-bone the seams; put a couple of tucks, and either a false hem of binding, or over-stitch the hem in scallops with Berlin wool. The tucks are to allow for shrinking. Use a sloping band with two buttons behind.

There is an objection to using a stay-hook with the present plain-fronted skirts, but some ingenious little contrivance may be substituted: for instance, a couple of flat linen buttons and an elastic loop. Place the buttons near together. Work a button-hole in every band at the same place. Button every skirt over the lower button. When the last is on, slip the elastic loop of the top one over the lower one, thus keeping all in place.

To Make and Line an Ungored Skirt.—This style of skirt is not now worn, but a knowledge of the way of making it belongs essentially to dressmaking. There are two ways. First we will name the easiest, in which way a gored skirt may also be lined. Cut your threads of material and of lining both of a width; tack the lining to the material. When all the breadths are prepared, first pin them together at the bottom. Run them neatly, taking a frequent back-stitch, and having the seam pinned to your knee or a leaden cushion. Keep both very even. Each

breadth should be pinned all the way up before running, front, if you can avoid it. You may even have to split a to insure keeping it even. Do not pass it round the breadth to avoid this. A welt and buttons up the front

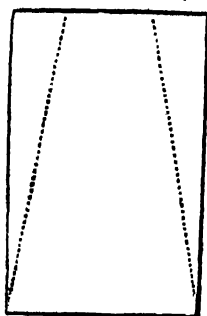


Fig. 7.



Fig. 8.

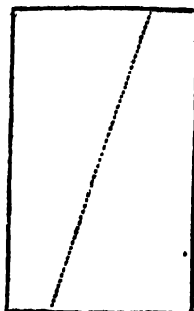


Fig. 9.

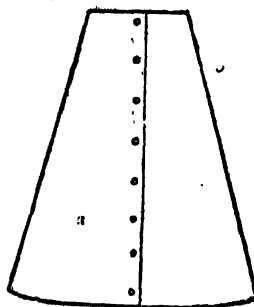


Fig. 10.

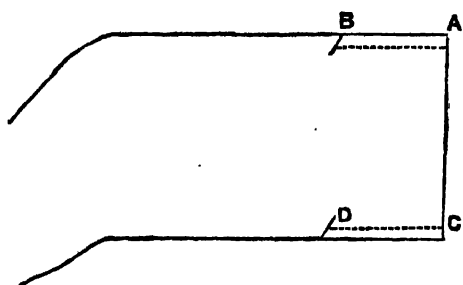


Fig. 11.

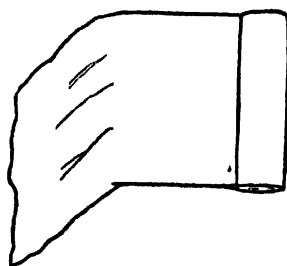


Fig. 12.

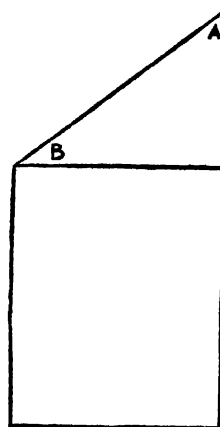


Fig. 13.

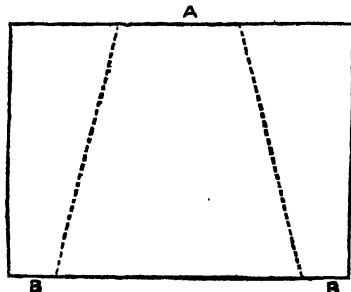


Fig. 14.

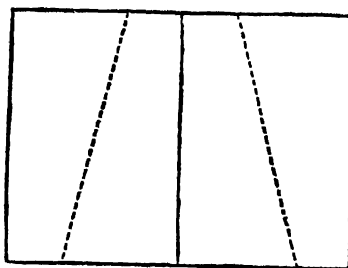


Fig. 15.



Fig. 16.

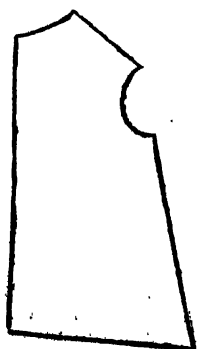


Fig. 17.

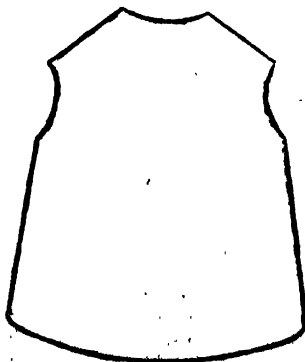


Fig. 18.



Fig. 19.



Fig. 20.

end of the finger, or the seam will be puckered. The made in a manner previously described, will hide an inevitable join, sometimes rendered necessary by taking out

a damaged piece. The dress may be turned up and hemmed, or have a false hem of lining.

Another Way to Make and Line the Skirt Ungored Plain.—Cut the breadths. Pin each together at the bottom. Before running, pin up each one. Always begin from the bottom, or the skirt will not hang well. Join all the breadths, but do not join the last but one to the first. You now have your skirt in a flat, open piece. Iron open all the seams. Make up the lining precisely the same. Lay as much of the skirt as you can on a table; lay the lining on it. Take two needles and tack along the top as it lies on the table, leaving in the needle, or till you come to a seam, A to B, Fig. 11. Tack along the bottom the same way, C to D. Then fold back the lining, and with a third needle, tack the selvage of the lining seam to the selvage of the material seam, from B to D. Lay the lining back again, and tack along as before with the needles No. 1 and No. 2, till you come to another seam, which you run as you did the seam before with needle No. 3. When you have tacked all that is laid on the table, take the ends A and C in your hands, fold over a few inches, repeating the process again and again until all be folded that was tacked. Then draw as much more as will cover the table (see Fig. 12). Let your folding be very even. When all this is done, run the skirt together by the first and last breadth of the material, leaving the lining. Also run the lining together. Lay it again on the table, and catch down the lining, not taking the stitches through.

Now turn down and tack half an inch all round the bottom. Then turn down the hem, pin and tack it. Turn in all round the top the lining and material together, so as to leave no raw edges. Run this turning close to the top, hem the bottom, not taking the stitches through more than the lining.

Braid is always to be held lightly and easily to sew it on, neither pulling nor fulling it. It is likewise very necessary not to pull the stitches at all tight as you work. If you do so, your work will have a puckered look. It is a good plan to bind the braid over the edge of the hem.

How to Cut a Gored Skirt from a very Wide Material, such as French Merino, &c.—For the front take off a gore each side, like Fig. 13, leaving A, the top of the merino, seven or eight inches wide, and B B about six. Reverse these gores and place one each side of the front. Cut the side breadths the same way, and split the centre one (see Fig. 14). But it is more convenient to fold the merino in half first, and gore it in the usual way, as these side gores should be all equal. The fold can afterwards be split. Two breadths thus cut, and the plain breadth behind, in addition, are sufficient for a short skirt.

To Put a Skirt in the Gathers.—The mode of doing this constantly varies. The skirt must always be sloped at the waist in front. At present they are made plain in front. They sometimes have one pleat on each hip, and are gathered at the back. The pleats are an inch wide.

To Make Frills and Flounces.—Those run and drawn are cut on the cross, and may be plain hemmed or roll hemmed. The roll is done in this way:—Turn down three parts of an inch from the edge on the wrong side, and run it all along as near the fold as possible. Then turn down and hem the edge to the ridge this running makes, and be sure not to take the stitches through. To draw the flounce with a heading, turn down the head and run it with strong cotton.

Some flounces are cut on the cross, and bound top and bottom with silk or satin. Cut narrow bands of the satin on the cross; run the satin (having joined the breadths) to the material on the right side; turn it over and hem it on the wrong side. Bind both edges. Run on the flounce by gathering, or running in a cord. Some flounces have a bias band or trimming over the gathers.

Pleated flounces or frills and pleated trimmings are cut on the straight. They are bound or plain hemmed at each edge. A pretty way of putting on a flounce bound with satin of another colour, is like Fig. 15. The top is bound and lined with satin as deep as the heading. The flounce is put on with box-pleats, the centre of each pleat caught down and sewn, so that it looks like a shell. We have drawn



Fig. 21.

those of the flounce close together here, to save space, but each fold should be about the width of a pleat apart. What is known as kilt-pleating is very much used. It is cut straight, and consists of very close, fine full pleats. The top and bottom are hemmed. Lay it on the skirt, like Fig. 16: pin each fold from A to B, and again go round and pin them at C. Stitch on the flounce all along at A. A band or trimming may or may not be laid on here. Turn the skirt on the wrong side, and run it along, lightly catching the flounce all round at C, but not letting the stitches show on the right side. Kilt-pleating is most usual on short skirts. There may be one or two rows, with or without a *plissé* heading; Fig. 17 shows this latter trimming. Both edges are hemmed. It is pleated on at both edges, and is the proper tunic trimming for a kilt-flounced skirt.

Bias bands are frequently in fashion. They take little stuff, but are not laid on very easily, and should be cut completely on the cross. Take your material, fold over the end, and cut it off on the slant from A to B, Fig. 18; then continue cutting your bands. Join the breadths of the bands. They must be piped with some different

material. Cut your pipings also on the cross, about half an inch wide; join them. Fold the piping in half. Cord is not generally employed, but its use is optional. Run the piping to the edge of the band each side. Lay the skirt on the table. Lay on the bias, pin and tack at both edges, very flat, as before instructed to do with a plain trimming. Then, holding it in the hand, run very finely between the edge of the material and the piping, taking your stitches on the piping. The stitches should not be perceived when the skirt is finished.

In hemming down the piping at the neck and waist of a body, do not take the stitches through to the right side.

Box-pleats are those which are turned both ways.

Quilling is a number of little pleats made in ribbon, blonde, or narrow material, like the kilt pleating (Fig. 16). Sometimes the thread is in the centre, sometimes at one edge.

Ruching is a pleat turned each way, like Fig. 15, the thread being in the centre.

Double ruching is made by taking first two pleats one way, and then two pleats the other. The upper pleats should be just smaller than the under ones, to show both. A pretty fancy ruche can be thus made, and then the two edges of the upper ruche caught together in the centre.

The turning and altering of half-worn dresses and mantles forms an important part of the business of dress-making in those families where economy is an object. The styles of the day, in their wonderful mixture of materials, are singularly helpful in turning old clothes into new. Cashmere and silk is a very stylish costume, and two half-worn dresses, or one old black silk may be fairly metamorphosed into one fashionable new one by the exercise of a little ingenuity. The first part of the process is the unpicking, and on this especial stress should be laid, as great care is needful. No holes should be cut, and no rough pulling asunder be allowed. Every end of thread must be taken out, and the silk or cashmere well shaken and dusted previous to sponging or cleaning. Good recipes for this can be found in other parts of this volume. All done-up silk skirts must be lined with new lining; without this support they would split and tear. The lining also takes from the thin appearance which old silk is apt to assume, and each breadth should be lined separately, to insure their pulling exactly straight. The invention of plaiting-machines has been a great boon to the home dressmaker, as she is now able to cut her frills and join them, and send them out to be pleated and stitched at a very small cost per yard—either of a penny or three-halfpence. Kilted flounces should never be put on the skirt itself with the machine, as the marks made by it cannot be erased, in case the dress should have to be altered again. As silk skirts, particularly black ones, are done up over and over again, it is well to remember all these little things at the first time of making. The sleeves of mixed-material costumes must be of silk, also the middle of both back and fronts. The skirts may be of either silk or cashmere; in the latter case the trimmings should be of silk. The bodice of an old dress is especially easy to alter, as the various kinds of collars and small capes now worn will hide all kinds of alterations and additions.

MANTLES.

Though the fashion in mantles very frequently changes, there are certain broad principles in the cut which, if they be once mastered, will enable the sempstress to make any slight variation. The first and simplest is the loose jacket. The paletôt is another description of mantle which is usually worn long. It is made with a join down the back sometimes. The length is down to the knees, or longer; Fig. 20 is the back, Fig. 19 the front. Both the jacket and paletôt, if made in light material, should be joined with mantua-maker's seams,

the edge hemmed or turned up on the right side under a trimming. Made in cloth or velvet, they must be stitched nicely on the wrong side. The edge of cloth is turned down and machine-stitched, or turned up, tacked, and a braid run over it by both edges. Velvet is always lined, cloth likewise at times, especially the loose, rough kinds. Cloth and velveteen may be lined with scarlet flannel. It is done in this way:—Tack the lining to the back of the jacket or paletôt. Tack the lining flat to each front, but stitch the front of the cloth *only* to the back of the cloth and the lining of the back. Then turn down the front lining and hem it to the back. Turn in the edge of the lining and cloth to meet at the bottom, and run them together. A band is put round the neck. Cut the sleeves, tack on the lining, stitch the two sides of the sleeves and one side of the lining together. Turn over the other side, and hem it down, stitch in the sleeve the same way, keeping back the sleeve-lining, and afterwards hemming it over the join. Put a broad hem each side of the front, or a false hem. If not double-breasted, make a tongue of cloth and tack it to one side to cover the opening inside. Velvet is lined with silk in the same way. If quilted, the lining must be cut larger than the jacket, and each piece quilted alone, and then joined in as before described. Try on the pattern, and let it lie easily over the dress. The side pieces of the back and front are not stitched over like a body, they must be tacked together by the edges on the wrong side, stitched as far as the waist, and the rest neatly run. Hold the rounded side outwards or to you. Careful management is needed to join these well. Afterwards cover the seams with narrow black ribbon run over them, if the mantle be black. The side seams are stitched together to the waist and then run. They are cut down to a third of an inch, and covered with ribbon, and the shoulders in the same. The sleeves are also stitched and covered, as well as the armhole. The edge of the mantle may be hemmed or machine-stitched, or turned up, tacked, and covered with trimming. The neck is piped and hemmed down. The sleeves are lined at the cuffs with deep false pieces.

Mantles can be trimmed in a variety of ways. Bias bands are often used, if of silk, piped with satin. Lace and fur are also in favour. The tight jackets are lined in a similar way to that already described.

The two figures at Fig. 21 are intended to explain the method now so much in vogue, of measuring for a pattern as gentlemen's tailors do. The numbers refer to the order in which the measurements are taken. Now, if it be intended to make the dress by an old pattern, they should be carefully taken, as they will show any change in the figure. The way to take the length of the skirt is also shown, and now that such close fitting is required, the hip measurements are especially requisite. Those given on these figures are suitable also for a Princess dress.

FRUIT DAINTIES.—IV.

APRICOTS.

To Candy Apricots.—Slit the fruit on one side of the stone, dry them separately on a dish, and cover them with crushed lump-sugar. Bake them in a hot oven, and then dry them in a warm place for a few days.

Apricot Chips.—Cut the apricots into slices the length of the fruit, but without removing the peel, and put them in a thick syrup containing double the weight of sugar to that of fruit employed, and which has been previously boiled until ready to candy. Let the syrup containing the fruit be made as hot as possible without boiling, then remove from the fire and allow the fruit to remain in it all night. Next day remove the chips from the syrup, spread them on plates, and dry them.

Apricot Jumbles.—Pour boiling water over the apricots until they are soft, remove the stones, and dry the fruit in a pan over the fire, or in an oven. Then beat it into a stiff paste with sugar, roll it into lengths, tie the lengths into knots, and preserve for use in a dry place. If it is wished, these jumbles may be coloured red by the addition of a little cochineal to the fruit pulp.

Apricot Green Pasta.—Scald the apricots, beat them up, and strain the soft pulp, and mix it with syrup containing twice their weight of loaf-sugar, and let it boil for a short time; then remove it from the fire, and when cold pour it into moulds.

Apricot Marmalade.—Peel some very ripe apricots, cut them into quarters; then put them into a preserving pan over the fire, without the addition of either water or sugar, and stir them continually, so that they may not burn. When the fruit is reduced to a pulp throw in gradually some loaf-sugar, using for this purpose three-quarters of a pound of sugar to each pound of fruit, and boil the whole into a thick jelly, and pour it into pots or glasses. Another way to prepare apricot marmalade consists in boiling five pounds of fruit with two pounds of sugar, previously converted into syrup, until any scum ceases to rise on the surface. Then take it from the fire and mix three and a half pounds more sugar with the marmalade; let it simmer a little, and preserve it for use.

To Preserve Apricots in a Dry State.—Put the fruit in a jar placed in a saucepan of hot water over a good fire, and let it boil for half an hour; then place the apricots on a sieve that the juice may drain away, and afterwards put them on plates, cover them with sugar, and dry them in a warm place.

Apricot Drink.—Peel a dozen apricots, and, after taking out the stones, place them in a quart of boiling water; let it stand for an hour, then strain off the clear liquid and sweeten it with a quarter of a pound of sugar.

Apricot Wine.—Boil twelve pounds of sliced ripe apricots in three gallons of water and strain the liquor into a pan; then collect the kernels of the fruit retained by the sieve, crack them, and put them in the clear liquid, stir them together, and, having covered the vessel allow it to cool. Mix some yeast with it, and allow it to remain in the pan for three or four days. Then decant the clear liquid into a cask, and let it remain undisturbed until the fermentation is ended. A pint of Rhenish or other white wine should then be added, and the cask closed for six months. At the end of that time it should be decanted into bottles, and kept for a year longer before being used.

REMOVING FURNITURE.—I.

THERE is an old saying that, in point of destructiveness, two removals are equal to one fire, and it is quite possible that before the art of removing was so well understood as at present, this saying may have been almost literally true, as, indeed, it may even now be if the removal is injudiciously and ignorantly made. As in most matters of material convenience, however, we have in this respect made decided progress; and by calling in the aid of modern knowledge and improved appliances, it is possible to avoid the more destructive and disagreeable consequences of a removal.

Most of us have had some experience of the miseries of a removal as carried out before modern intelligence and modern resources had been turned in this direction. For weeks before the event, owing to the gradual stowing away of various minor articles, the house was in a growing state of discomfort. Books, china, candlesticks, and everything which one happened particularly to want, were never to be met with. The housewife packed glass, and other fragile things, into all kinds of receptacles, proper and improper, and as she was often ignorant of

the principles and right methods of packing, breakages were always to be looked for. For the heavier packing a porter had to be engaged, and as he was an odd man, and responsible to no master for his conduct, he was frequently very careless and destructive, and persisted in packing the clocks and fire-irons in juxtaposition. The furniture was stowed at last into two vans from the green-grocer's, and having dispatched them, you left for the new home. There you had to wait a considerable time before the vans appeared, and when they came (in the evening), the porter was rather more stupid than usual, and the drivers in a confused condition. Unpacking was a time of hopeless confusion, and three or four weeks elapsed before things were to any extent in their proper places, or before you could properly estimate the number of breakages, or of small matters purloined upon the road, which generally included a volume or two from every favourite set of books. Still a removal by road, such as we have supposed, was infinitely better than one by rail, for then, owing to inefficient packing, the breakage, even in large articles of furniture, was something fearful.

To this the modern system, carried on by persons who make it the business of their lives, and by whom the art of packing has been reduced to a science, offers a favourable comparison. Notice having been given that you require the services of some one of the firms engaged in this business, you are, a few days before the removal, waited upon by an agent, who looks through the house, and requests that nothing may be packed, or removed from its place.

On the morning of the appointed day the van, or vans, arrive, and the first care of the men in charge is to place them in such a position near the house that they may not impede traffic. These vans are of large size (especially if they are not intended to be sent by rail), and have ledges upon which planks can be placed, and the van thus divided into distinct floors. The men then look into the different rooms, to form their estimate of the quantity and nature of the furniture, and the best means for disposing of it. The mistress, if inexperienced in such matters, follows them, and makes various suggestions, which are received with the greatest civility, but which are practically ignored, since they are aware that they understand the matter far better than she does. All their packing is proceeded with upon system; and now will be seen the advantage of leaving everything in its accustomed place instead of previous packing up and putting things together. When things are left untouched, the men, from their general knowledge of the contents of houses, know where they can at once lay their hands upon any article, that it may be stowed in its proper situation in the van. Heavy articles, such as fenders, iron bedsteads, &c., are placed in the bottom. Books, as a rule, are laid at the farther end of the floor of the van. Kitchen utensils are packed in washing-tubs, &c. China and glass are packed into proper crates brought in the vans. Ornaments with glass shades are placed with the shade downwards, and into this the statuette, vase, &c., is afterwards packed. If desired, the plate-box is stowed away in the least accessible place. Mattresses are laid flat, and upon them the looking-glasses are placed, face downwards. As the packing proceeds, the planks are placed across the van, so that the weight of the things above does not press upon, and therefore cannot injure, those below, and from their intimate knowledge of the shapes and sizes of articles, the packers are able to economise every inch of space. The rougher and least valuable things are left till last, that in case the inside of the van should be unable to contain them, they may be packed on its top.

The furniture of an eight-roomed house will commonly take about five hours to pack, and when the loads are completed the foreman of the packers, who is responsible for the safety of the goods, padlocks the doors

behind. The class of men employed by the large firms engaged in the removal of furniture is, for labouring men, a high one; they will almost universally be found civil, intelligent, and active, and any civility offered to them in the shape of refreshments is not likely to be abused, as they know that good situations are dependent on their sobriety.

The loaded vans proceed at the rate of two and a half miles per hour, and go by way of the principal thoroughfares, partly because their great length renders it difficult for them to take the short turns in by-ways, and also that they may the better avoid jolting.

The householder will have taken the precaution to have had the new house previously well cleaned from top to bottom with soft soap, and if any places have appeared which indicate a suspicion of bugs, insect powder or carbolic acid should have been sprinkled into them. It will also be well that he should have carefully surveyed the house and arranged the precise room into which each article of furniture should go; he will thus be able to stand at the door while the vans are unloaded, and as each article is brought in, to name the room into which it should be carried, and thus all confusion will be avoided. He will, moreover, if he takes our advice, have stipulated that all bedsteads be screwed together, and all looking-glasses hung in their places upon the walls by the contractor's men.

The cost of a removal by the modern system will rarely exceed, and will often be less, than when the occasional porter and the greengrocer's van are employed. The charges of different firms vary, and when the removal is for a considerable distance by rail, it becomes still more difficult to give any general scale of charges, as the different rates of tonnage of the railway companies then come into operation. The furniture of an eight-roomed house may, however, be removed for six miles in London for as little as three pounds by some of the cheapest firms, or taken a hundred miles by rail for ten times that amount. Any of the firms will contract for a fixed sum beforehand to remove the goods either by the van-load or for a general charge for the whole amount, and the latter plan is generally preferred as more satisfactory to both parties, a competent agent being sent by the contractors to survey the goods previous to making the arrangement; the contractors undertake the responsibility of breakage.

FANCY BISCUITS.

Queen's Biscuits.—Make a soft paste of the following materials:—A pound and a half of flour, the same weight of powdered loaf-sugar, the yolks of eighteen eggs and the whites of twenty-four, and a sufficient quantity of crushed coriander-seeds. A little yeast may also be added, if desired. Make the paste into biscuits, and bake them on paper, at a moderate heat, until they begin to turn brown.

Nuns' Biscuits.—Beat up the whites of a dozen eggs, and add to them sixteen ounces of almonds, blanched and pounded into a paste. Then beat up the yolks of the eggs with two pounds of powdered loaf-sugar, and then mix all together. Add to these half a pound of flour, the peel of four lemons grated, and also some citron-peel sliced small, and make the whole into a paste, which should be put in patty-pans previously buttered, and only half filled and then baked in a quick oven. When the biscuits begin to turn brown turn them in the tins, sprinkle some sugar over them, and again put them in the oven until done.

Sherry Biscuits.—Take one pound of lump-sugar, eight eggs, and a sufficient quantity of sherry wine, beat them well together, and then add a pound of flour and half an ounce of coriander-seeds. Pour the paste into buttered tins, and bake them at a gentle heat for half an hour; then turn them, and cover their surfaces with some more eggs

and sugar, and replace them in the oven for another quarter of an hour.

Lemon-peel Biscuits.—Cut some lemon-peel into thin slices, and mix it with four or five spoonfuls of flour, a quarter of a pound of powdered sugar, and four eggs beaten up. Spread this paste on white paper, cover with powdered sugar, and bake it. When done, remove the paper and cut the paste into pieces of the required shape. These biscuits may also be prepared in another manner. Steep the rind of a lemon in hot water until it becomes soft, and pound in a stone mortar. Then blanch half a pound of sweet almonds, and beat them up with two eggs and the bruised lemon-peel, and also two ounces of gum tragacanth previously made into mucilage with water, and a pound of loaf-sugar. When these materials are very well mixed add two pounds more sugar, and roll the paste into little rolls, lay them on white paper, and set them in the oven.

Aniseed Biscuits.—Mix together half a peck of flour, half a pint of yeast, an ounce and a half of aniseed, with four eggs and a sufficient quantity of milk. Make these materials into a roll-shaped cake and bake it; then cut it in slices, like toast. Cover them with powdered sugar and dry them in an oven, and while hot again apply more sugar to the surfaces.

Savoy Biscuits.—Beat up twelve eggs with three spoonfuls of water, adding gradually a pound of finely-powdered loaf-sugar. When the mixture becomes of the consistence of thick cream, mix with it a pound of fine flour previously dried, and mould it into long cakes, which are to be baked in a slow oven. Savoy biscuits may also be prepared in the following way:—Take about six eggs and weigh them, and afterwards beat them into froth, and mix with them some fresh-grated lemon-peel, beaten with a little sugar in a mortar into powder. Then beat up with them the same weight of sugar, as of the eggs employed, and also the same quantity of flour. When the materials are made into a paste, mould it into biscuits, sprinkle white sugar on them, and bake them on paper at a moderate heat.

Lisbon Biscuits.—Beat up four eggs with five spoonfuls of flour, and one of powdered white sugar, and pour it over a sheet of white paper, previously sprinkled with powdered sugar; sprinkle more sugar on its surface, and bake it at a moderate heat. When done, cut the biscuit into pieces, and remove the paper.

Chocolate Biscuits.—Mix some chocolate powder with white of eggs, and powdered loaf-sugar, into a paste. Mould this into biscuits, and bake them at a gentle heat on a sheet of white paper.

Jasmine Biscuits.—Beat up some jasmine flowers, freshly gathered, with white of eggs, and loaf-sugar. Make them into small biscuits, lay them on paper covered with sugar, and sprinkle more on their surfaces. These biscuits require to be baked at a moderate heat.

Cracknels.—Beat up eight eggs with the same number of spoonfuls of water, and a grated nutmeg. Pour them on three quarts of flour, and add sufficient water to make the flour into a thick paste. Then mix with it two pounds of butter, roll it into cracknels, and bake them on tin plates.

Biscuit Drops.—Beat up four eggs with a pound of finely-powdered loaf-sugar, and a small quantity of water, add the same weight of flour, and some caraway-seeds. Then butter the surface of a sheet of white paper, and lay the mixture on in spoonfuls; sprinkle them over with fine sugar, and bake them at a moderate heat.

Biscuit Drops may also be made in another way. Employ for the purpose two pounds of sugar and eight eggs, with half a pint of water, or sherry wine if preferred. Beat them up for an hour, and then add some caraway-seeds in powder and two pounds of the best flour, and proceed as already directed.

GARDENING.—LV.

CLIMBING AND CREEPING PLANTS FOR GARDEN DECORATION.

ORNAMENTAL climbing and creeping plants should be employed to some extent in all gardens having any pretensions to tasteful furnishing, as contributing an element of grace differing widely from, and not attainable by, plants of a compact and self-supporting habit. Unquestionably most of these plants never appear to such advantage as when associated with rustic architecture, ruins—natural or artificial—or in a portion of a garden broken up into banks and dells, with rock-work introduced as a characteristic



hints on their culture and capabilities, and also the prices at which they may be generally obtained at the nurseries.

The *Clematis* is a genus that furnishes many species and varieties, and must hold a foremost place from its hardiness, easy culture, and adaptability to any form of training, and for the gorgeous richness of colouring of the

flowers of many of the varieties, ranging from pure white to the most intense blue, and various shades of purple. They all like a tolerably rich soil, which should be aided by an annual top-dressing of good manure, applied in the spring, when the growth commences; they should have an open, sunny position, and when so placed that they may be allowed to ramble about freely, require no pruning or other



JASMINE.



COBÆA SCANDENS.



CONVOLVULUS.

feature; thus employed, and allowed to ramble unrestrainedly, they in a few years attain an appearance of free, natural grace that must be appreciated by all lovers of the beauties of nature. Nevertheless, there are very few of them which may not be used in the trimmest and most artificial of gardens, with good and, in many cases, charming effect.

Without dilating any further on their general beauties and uses, we will proceed to name a few of the most effective kinds, giving as we proceed the necessary

attention; when used for the decoration of formal wire arches, pillars, or balustrades, or any purpose where some neatness and order is desirable, it is necessary to cut out all the dead wood early in the spring (when established they make a most luxuriant annual growth, a considerable portion of the young growth dying back in the winter), and as the young growth progresses, to tie it into position until it has covered its allotted space; but too hard tying should not be practised, as detracting from the natural grace of the plant. A very beautiful and effective

mode of using them is in beds, on the open lawn, loosely pegging the young growth down in the spring until uniformly covered; a sheet of bloom of some weeks' duration is thus obtained. A circular bed of ten or twelve feet diameter would be amply furnished with three plants. The following are among the best for general uses:—*Jackmanii*, *Rubra violacea*, *azurea*, *Hybridum splendens*, *lanuginosa*, *Patens violacea*, *rubella*, *Standishii*, and *Fortunii*; *flammula* is the old well-known white, sweet-scented clematis; these may be purchased from 1s. 6d. to 3s. each.

There are many varieties of roses well adapted for training on pillars, arches, and walls. The following are a few of the most distinct:—*Maria Leonida*, *Charles Margottin*, *Comtesse de Chabillant*, *John Hopper*, *Victor Verdier*, *Général Jacqueminot*, *William Jesse*, *Souvenir de la Malmaison*, *Celine Forestier*, *Jaune Desprez*, *Lamarque*, *Maréchal Niel*, *Solfaterre*, *Climbing Devonienensis*, and *Gloire de Dijon*. With the exception of the first-named, these are all perpetual bloomers, and though well adapted for the purposes named, yet not being naturally climbing plants, are not fitted for positions in which a rambling luxuriant growth is desired; for this purpose the true rambling roses must be planted, which are *Boursoult*, *Banksian*, and *Ayrshire* roses, in several varieties, white, red, and yellow; these only carry one crop of bloom annually, but make a magnificent display while they last; all of them require an open position and good soil, with an annual winter dressing of manure, if they are expected to bloom freely. Price, from 1s. to 2s. each.

The *Wistaria Sinensis* is a noble, climbing plant of somewhat slow growth for two or three years, until it gets well established, after which its growth is rapid, making annual shoots many feet in length, a portion of which die back; the remainder gradually develop into a stout, woody condition. It is well adapted for covering the entire face of a house, an extensive wall, or a series of arches, such as an arcade or verandah. The flowers are produced in great abundance on spurs of the old wood, in long racemes of pale blue, in shape and size somewhat resembling the laburnum. It is a deciduous plant, of handsome foliage, of a pleasing shade of green, requires an open position, and thrives best and most rapidly on a light, warm soil. Small plants of this species vary in price from 2s. 6d. upwards.

The hardy, blue passion-flower (*Passiflora cærulea*) is very handsome, both in foliage and flower; deciduous, suitable for positions similar to the last-named plant, but is best on south aspect; hardy in ordinary winters, on cold soils it will succumb to a very severe frost, but may be saved by protecting with mats. Plants may be bought at a cost of about 1s. 6d.

The common Dutch honeysuckle (*Lonicera periclymenum*), a very pretty, sweet-scented climber, deciduous, perfectly hardy, requires an open position to bloom freely, may be grown as a free scandent plant, or may be confined to any limited form by cutting away the superfluous annual shoots in the winter. The Japanese honeysuckle (*Lonicera brachypoda aurea reticulata*), a pretty evergreen climber, the leaves being beautifully veined with gold; of no value for its flowers; may be used in any limited form or position; pegged down in a line it makes a pretty permanent edging to a flower-bed or border on grass, or if allowed to grow unchecked it will quickly cover a large space; it is very pretty as a creeper over rock-work; will thrive under the shade of trees if not too dense. Each of these may be bought for 1s. 6d.

The white, sweet-scented jasmine (*Jasminum officinale*), and *Jasminum nudiflorum*, producing an abundance of bright, yellow, scentless flowers in mid-winter; both these should be in every garden; the former looks best when allowed to ramble freely; the latter makes a conspicuous

object grown as a pillar in the open ground. They will grow anywhere, but bloom more freely when in an open position. Price 1s. 6d. each.

Magnolia grandiflora, a splendid evergreen wall-plant, with large laurel-like leaves of a leathery texture and bright glossy upper surface, producing freely its glorious clusters of scented, creamy white blossoms; this should have a sunny wall if possible, and in exceptionally severe winters it is a good precaution to protect with mats. Price, from 3s. 6d. to 21s., according to size.

Crataegus pyracantha, an evergreen shrub, with brilliant red berries in large bunches, freely produced in winter; and its variety, *C. p. fructo lutea*, with yellow berries, are both very showy, and should be trained over a flat surface, such as a wall or trellis, as the berries are thus more fully displayed; perfectly hardy; should have a light, if not a sunny, position. Price 1s. 6d. each.

The Virginian creeper (*Ampelopsis hederacea*), is a rapid-growing, deciduous vine, clinging firmly by its tendrils to a wall or other support; it requires no nailing or tying, and it will cover the face of a house in a very few years. When occupying a sunny position, its leaves change to a brilliant red a few weeks before falling, giving it a singularly handsome appearance. Will grow anywhere: suitable for quickly covering a ruin, or standing trunks of decaying trees. Price 1s. 6d.

As a permanent evergreen climber, the ivy must be first, for it will grow anywhere, in sunshine or shade, in strong rich soil or in poor stony gravel; it will put up with almost any amount of ill-treatment, and positively thrives best when neglected. Of course, if it is required to put on an orderly appearance, such as when clothing the face of a dwelling-house, some attention must be given to it, particularly to the large-leaved varieties, as if allowed to grow unchecked to any great height on a vertical face, the loose, overhanging branches form a receptacle for snow in winter, the weight of which will sometimes tear down great breadths of it. In such positions ivy should never be nailed to the wall after the first season, if it can anyhow be avoided; it will be a saving of time in the end to wait until it clings naturally to the wall. To this end all loose branches should be cut off about the end of April or the first week in May, and it is at this time that walls that are already covered require annual attention; the whole face of the ivy should then be gone over with a pair of shears, cutting off all loose branches, and the greater portion of the leaves of the large-leaved kinds. As this is the time when the plant is on the point of breaking into its new growth, its denuded appearance will only last about a fortnight, when the whole face of the wall will be again covered by a surface of fresh, green leaves, and all branches formed near any uncovered portion of the wall will, from the vigour induced by the pruning, at once firmly cling to it. This annual pruning will cause the wall to be covered by a felt-like growth of branches, firmly attached, so that no violence of wind or weather will disturb it.

The best quick-growing variety to cover a wall is the common Irish (*Hedera Hibernica*), a large-leaved kind. Another kind suitable for the same purpose is *Hedera Razneriana*: it does not make such a close compact growth, but possesses fine, large, leathery foliage, quite distinct. The English ivy (*Hedera helix*) is a small-leaved, close, compact-growing kind, having a very neat appearance, but of much slower growth: this is about the best green-leaved variety for covering banks or rock-work, for which purpose small-leaved varieties should always have preference. *H. helix aurea maculata*, *H. h. elegantissima*, *H. Hibernica aurea maculata*, and *H. Japonica argentea*, are varieties with variegated leaves suitable for rock-work, or covering dwarf walls, but all the variegates are of much slower growth, and the markings are much better developed when in an open position. There are

many other varieties, but those named are of the freest habit, and may be bought from 1s. 6d. to 2s. 6d. each.

Pyrus japonica and *P. J. alba*, *Euonymus radicans albo marginata*, *Escallonia macrantha*, *Ceanothus azureus*, and *C. grandiflora*, *Cotoneaster microphylla*, *C. rotundiflora*, and *Sabina elegans*, are all shrubby plants of a prostrate habit, suitable for trailing over banks or rock-work, or may be trained up dwarf walls, and are handsome both in foliage and flower, and require an open position and a free soil. *Vinca major*, *V. minor*, *V. foliis argenteis*, *V. f. aureis*, and *Hypericum calycinum*, are quick-growing evergreen creeping plants, especially valuable as thriving vigorously in dense shade. Most of them may be bought from 1s. to 2s. 6d. each.

Lathyrus latifolia is the everlasting pea; *Calystegia pubescens pleno* is a very pretty, double-flowered bindweed of a pleasing rosy colour. Both these are herbaceous perennials, dying down annually, growing and spreading freely, but want an open position. Price 1s. each.

Convolvulus major, tall or running nasturtium, canary creeper (*Tropaeolum peregrinum*), *Maurandia Barclayana*, *Lophospermum scandens*, *Ecchremocarpus scaber*, and *Cobaea scandens* are annuals, or must be treated as annuals for employment out of doors—that is, they must be raised from seed annually; and the best way to secure an early, abundant, and continuous display of bloom is to sow them in pots of nice light soil in February or the beginning of March, giving them a warm position in the greenhouse, and, as soon as large enough, pot them singly into five-inch pots; they will thus be strong for planting out in May. Where there is not the convenience for doing this, they may be sown out of doors from the middle to the end of April, according to the weather. They all want a nice light, rich soil to start in when planted out, or sown, and should have sunny positions, and may be employed wherever floriferous climbing plants are desired. Seed of these may be obtained at prices varying from 3d. to 6d. per packet.

BUILDING SOCIETIES.

III.

HAVING explained the general working and objects of building societies, let us now see how the Act of 1836 assists their undertaking. In the first place, no shares must exceed £150 in value, but a member is not restricted in the number which he may hold. This last fact was at first the subject of a good deal of doubt, but it has been lately decided that a rule of a building society enabling its members to hold an unlimited number of shares is valid. The monthly subscriptions to be paid upon account of each share must not exceed one pound per month. Building societies are not allowed, however, to lend money for any purpose other than that of purchasing houses or land, or for building purposes. Nor must the trustees or directors of a building society convert it into a freehold land society, by purchasing lands out of the funds of the society, for the purpose of division amongst its members. But they can advance money to persons not members, on security of mortgage. When a person is desirous of buying shares in a building society, for the purpose of becoming a borrowing member, he can have one or more allotted to him on the terms laid down in the rules of the society, in addition to which he will have probably to pay a sum of money, or premium, as it is called, for the privilege of having the shares allotted to him; and in the case of an investor, such premium must be paid by him if he wishes to have an advance of his shares before the same are realised. The amount thereof is generally determined at a sale held for the purpose, where the highest bidder becomes

entitled to have his shares advanced on payment of his bid, and of all arrears before the time actually has expired necessary for the realisation of them.

No member can receive from the funds of the society any interest or dividend by way of profit on his shares, until the amount of his shares has been fully paid up; but mortgages of the premises bought, or built with the money advanced by the society to the borrower, must be deposited with the trustees of the former by the borrowing member. The form of this deed must be in accordance with the rules of the society, express power being given to them by the Act, to describe therein the forms of conveyances, mortgages, transfers, agreements, bonds, or other instruments, necessary for carrying the purposes of the said society into execution, and which must be specified, and set forth in a schedule to be annexed to them. When a person has paid all his subscriptions, arrears of subscriptions, fines, and other sums due to the society, he is entitled, of course, to a re-conveyance of his property mortgaged. Now this, if it were necessary, as in other cases, to draw out a long deed of re-conveyance, would cause much inconvenience, and great expense. But it is happily laid down in the Act that it shall be lawful for the trustees named in any mortgage made on behalf of societies of this nature, to endorse upon any mortgage, given by any member of a society to the trustees, a receipt for the moneys intended to be secured by such mortgage, which shall be sufficient to vacate it, and vest the estate in the property comprised in such security in the person entitled to the equity of redemption, without it being necessary for the trustees of the society to give any re-conveyance of the property so mortgaged.

Another privilege granted to building societies by the Act is the exemption of all copies of their rules, and transfers of shares, from stamp duties; and by an Act of George IV., the mortgages given by members to the trustees of a society are likewise exempted.

The rules of a building society are drawn up by the members themselves, who assemble together and draw up such as they may think beneficial to the working and management of the society. Should there be a dispute on the subject of any of these rules, it is to be determined by the vote of the majority of the members present. They, however, must not be repugnant to the Act, nor to the general law of the realm. Power is also given to building societies to frame rules for inflicting fines, penalties, and forfeitures, upon any of their members who shall offend against any of their rules; so that a rule ordering that a member making default in his monthly payments six consecutive times shall forfeit all previous payments is valid. They can also alter and amend their rules, and make new ones, as occasion may require.

As almost every building society has different rules, we will not attempt to give a detailed statement with regard to them, but merely remark that they are all drawn up after the model prescribed by the Act, and of which we have laid before the reader the salient points. In order, however, that no abuses may creep into them, it is ordered by one of the Acts which are incorporated with that of the Building Societies, that two transcripts of the rules of a benefit building society, signed by three members, and countersigned by the clerk or secretary (accompanied in the case of any amendment of the rules with an affidavit of the clerk or secretary, or of one of the officers of the society, that the provisions of the Act have been duly complied with), with all convenient speed after the same shall be made, or amended, and from time to time after every new amendment, shall be submitted to the barrister appointed to certify the rules of friendly societies, for the purpose of ascertaining whether these are calculated to carry into effect the intention of the parties, and are in conformity with the law; and the barrister shall advise with the clerk, or secretary, if required, and shall give a

certificate on each of his transcripts, that the same are in conformity to law, or point out in what parts the rules are repugnant to it; and the barrister shall have a guinea for his trouble. One of these transcripts, after it has been certified, shall be returned to the society, and the other transmitted by the barrister to the clerk of the peace for the county wherein the society is formed, and by him laid before the Quarter Sessions, which is authorised to confirm the rules. The transcript is then to be filed with the rolls of the session without further fee. After this, the rules and amendments are binding on the members and officers of the society, and all other persons having interest therein.

Besides this, no society is entitled to reap the benefit of the Act, unless all the rules for its management are entered in a book kept by an officer of the society appointed for that purpose, which book must be open at all times for the inspection of members.

All these regulations are conditions precedent to the society's being entitled to the benefit of the statute, and, therefore, the omission to fulfil any one of them is fatal.

In case of disputes, unless the rules of a society provide for a reference of the differences between a society and its members to the justices of the peace, the only remedy is by arbitration. There is no power given by the Act to apply to a court of law, and, therefore, the plaintiff in such an action would be immediately nonsuited. There is, however, considerable doubt as to what matters referable to arbitration, but, to lay it down broadly, we may state that all disputes, connected solely with the affairs of the society, arising between it and any member, or person claiming on account of any member or members, can be referred as laid down in the Act.

The number of arbitrators must be specified in the rules of the society, as well as the mode of ballot by which those to act in such cases are to be chosen, but they must not be less than four in number, of whom three must act in every case of dispute; and they ought to be elected at the first meeting of the society, but if elected at a subsequent meeting their election would still be valid. They must not, moreover, be interested in the funds of the society. Their award must be made according to the schedule prescribed in the Act of George IV., which is incorporated with the Societies' own Act, and is binding on all parties, is final, without appeal, and may be enforced by proceedings before justices. A court of equity has no jurisdiction to alter the award, unless there be an error on the face of it, or it be shown to have been corruptly made. The arbitrators may decline to hear counsel, and cannot award costs.

It has always been a difficult matter to decide whether the holder of property mortgaged to a building society is entitled to vote in the election of knights of the shire, in respect of his freehold; for the reader is doubtless aware that no one is entitled to vote in respect of a freehold which is not of the clear value of 40s. a year, above all charges. But there has been a recent decision in the Court of Common Pleas, that the question must be reviewed thus: if, after deducting so much of the payments of the members' subscriptions, &c., as were made on account of interest, and not the sum paid for as principal, there remains a 40s. balance of interest, then the mortgagor is entitled to vote.

We have already hinted at the good resulting to borrowing members of building societies, we cannot therefore do better than conclude this article with a more explicit statement of the benefits accruing to those persons who are desirous of purchasing land or houses by enrolling themselves as members of a building society.

We will suppose then that John Doe is renting a house at £35 per annum, and is desirous of purchasing it, the price being £350. He has £50 of his own, and takes two

shares and a half in a society whose shares are £120 each, and the following result happens:—

	£	s.	d.		£	s.	d.
He takes 2½ shares at				He pays to the society			
£120 each	300	0	0	subscription on 2½			
His own money	50	0	0	shares at 10s. per			
				month.....	15	0	0
				Redemption money?			
				or, in other words,			
				interest on his shares			
				at 4 per cent.....	12	0	0
				Premium on the sum			
				paid for the privilege			
				of taking shares—			
				say £50—which is			
				eq. ally divided over			
				the whole period ...	12	10	0
				Interest on £50 ad-			
				vanced by himself			
				at 5 per cent	2	10	0
Amount required...	£350	0	0	Annual payment.....	£42	0	0

Instead, therefore, of paying his landlord a yearly rent of £35, or £350 in ten years, he pays £42 a year, or £420 in the same time, being an increase of £7 per annum, or £70 in ten years, to the society. But in the one case he acquires no right or title to the house, in the other absolute possession—effecting the purchase, in fact, for the sum only of £70 more than he would have paid for rent during the same period.

No one can deny that great good arises from the formation of these societies, and that they afford great facilities for purchasing freeholds. As an investment, there is no doubt that they are very profitable; but, of course, there are drawbacks to all societies and joint-stock associations, and building societies are not exempt from them in any less degree than other companies of the same sort. For instance, there are such things as dishonest treasurers and improvident directors, and then, of course, the money of the shareholders is either embezzled or squandered, and ruin and desolation is the result. But we are happy to say instances of this kind are very rare; and even were they more numerous than they are, we should be inclined to think that, even in that case, the evil arising from them would be more than counterbalanced by the good results brought about by benefit building societies.

ODDS AND ENDS.

Chestnut Wood.—The wood of the chestnut-tree possesses the property of not altering in bulk when exposed to heat or moisture. For this reason it is useful for the manufacture of casks for wine or other fluids. It also possesses the advantage of not giving any disagreeable taste to the liquid contained in it. It may also be used instead of oak-bark or logwood for tanning leather and making ink. The wood of the horse-chestnut is said to be so like the wainscot oak that only those who are accustomed to work these woods can detect the difference. The fruit of the horse-chestnut when ground into powder makes an excellent paste for shoemakers and bookbinders. It is employed in Turkey as a food for horses, especially when troubled with short breath or cough. They also give it to cows, to increase the amount of milk they yield. The prickly husks of the horse-chestnut are also useful for tanning leather.

Water-glass and its Uses.—What is commonly known by the name of water-glass is a kind of glass containing such an excess of alkali as to render it soluble in water. It is employed in production of an artificial stone for building and other purposes, and also for the purpose of rendering porous stone and brickwork more capable of resisting the action of the weather. It is procured by melting together

sand or quartz with soda, or potash and charcoal. The fused mass is mixed with water in an iron vessel, and boiled until it is dissolved. When pieces of flint, stone, sand, or similar substances are saturated with this liquid, pressed in moulds, and exposed to heat in an oven, it forms an artificial stone of great hardness, capable in some cases of receiving a fine polish. Solution of water-glass may be employed to preserve brick and stonework from the action of the weather, by first painting them over with it, and then applying a second coat of a solution of chloride of calcium, formed by dissolving chalk in muriatic acid.

The Vegetable Marrow.—

This vegetable, if properly dressed, is a mild, light, and wholesome food, and may be used for culinary purposes in every stage of its growth. When very young, it may be sliced and fried with butter; when older, it may be sliced and stewed with rice, or merely boiled, and served like asparagus, with toasted bread; when completely grown, it is thought to resemble the pumpkin, and may be employed either mashed like turnips or baked in a pie. According to Gerald, the pulp of this vegetable may be employed as a poultice to inflamed swellings, and it relieves headache if applied to the affected part.

Dry Rot.—A remedy has been discovered by using which this destructive enemy to the woodwork of a house may be destroyed or arrested. What is known as "dry rot," is caused by the spores of a species of fungus (the *Merulius lacrymans*) which, though they are sometimes carried by currents of air to the scene of their future devastation, are more frequently present in the soil upon which the house is built, at the time of erection, and are brought into near contact with the woodwork in the filling up between the joists, or sometimes even in the mortar. Notwithstanding its name, dry rot does not act upon perfectly dry timber, but begins its ravages whenever the wood is in the necessary state of humidity. It may be prevented by mixing with the rubbish used for filling in the floors, the "tank-waste" from alkali works, or the same substance will completely check it if already developed. Tank-waste is of no commercial value, and may be had at alkali works for fetching; it wholly destroys this species of vegetable life, and generates no bad smell whatever.

A Simple and Effective Method of Removing a Particle of Grit, &c., from the Eye.—Any small foreign substance may be removed from the eye with the greatest ease, and the smallest amount of irritation to the pupil, by means of a little piece of paper rolled up like a spill, and using the loose end. This is a remedy which will generally be at hand in places where such an accident is likely to happen, as in a railway carriage, and where other things proper for the purpose may be wanting.

Cleaning Jewellery, &c.—It is not generally known that the best substance for polishing jewellery is powdered animal charcoal, applied with a tolerably soft brush.

HOUSEHOLD AMUSEMENTS.—XLI.

HOW TO MAKE A FEW IMPROMPTU TOYS.

THERE are a number of toys which can be made in the moments of relaxation in the midst of the family circle, which cost nothing, and which are highly amusing to children, more so, indeed, than bought ones, since there is with these the additional pleasure and excitement of watching the process of making. With some of those

which we are about to describe we have ourselves often kept a circle of children in a state of great merriment, and we do not doubt but that some of our readers may do the same.

The Animated Serpent.—

Take a card (a plain one is best), and cut out the form of a serpent, as shown by the dotted line in Fig. 1. Make a hole at A and pass through it a string, by which to suspend the serpent from the mantel-shelf, or to hold it in the hand.

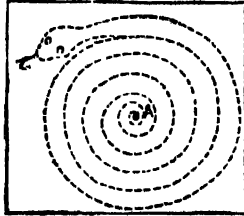


Fig. 1.

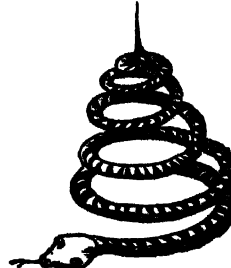


Fig. 2.

The weight of the card will cause the head to fall some inches below the point to which the thread is attached at the tail, and when the serpent is hung or held in a slight current of air, such as that before the fire, it will begin to revolve, as though alive, with greater or less rapidity, according to the strength of the current. This toy never fails to give delight to children; and it may be made to more closely resemble a natural snake by striping or spotting the body with green and black, as indicated in Fig. 2, and by adding two glass beads as eyes.

The Head which Rolls its Eyes and Wags its Tongue.

—Double a piece of not too stiff writing paper, and draw on one side a head—that of a dog, or a frog, is good, so is a grotesque human head; the eyes and mouth should be of a somewhat exaggerated size; the former must be cut completely out, and a slit made across the latter (see Fig. 3). Upon the other half of the paper make two dots to correspond with the eyes, and for the tongue cut through the paper, as shown by the dotted line in Fig. 4. The tongue thus made is thrust through the mouth slit, and by slightly moving



Fig. 3.

Fig. 4.

the back paper the tongue may be made to roll and wag, and the eyes to roll about so as to produce a variety of ludicrous expressions.

The Boy in the Coffee-pot.—On a plain piece of stiff paper draw a coffee-pot of the common upright shape, but without a lid, and cut a slit across the top; then take a strip of paper, of the same width as the slit, except at one end, where it must be wide enough to allow of cutting what will at once be the lid of the coffee-pot and the "muffin" cap of the boy, and upon this draw the face and cap, and cut out the latter. Put the lower end of the strip through the slit, and draw it tightly down behind. Nothing will now be seen but the coffee-pot with its lid on, and it is in this state that the toy should first be given to children; then, by slowly pushing the strip upwards with the finger, the boy will be made to emerge from the coffee-pot, to the great amusement of the little ones.

COOKERY.—LXXXVI.

FRENCH DISHES, ETC. (continued from p. 260).

Côtelettes d'Agneau (Lamb Chops) are prepared for table in the manner directed for *côtelettes de mouton*.

Côtelettes d'Agneau à la Parmesane (Lamb Chops with Parmesan Cheese).—Cover some lamb chops with melted butter, and sprinkle them over with bread-crumbs and grated Parmesan cheese. Then beat up two raw eggs, and steep the meat in it, and again cover them with more bread-crumbs and cheese. Fry them in butter until they are of a good colour, and pour some tomato sauce over them.

Ris d'Agneau (Lamb with Rice).—This dish is prepared in the same manner as directed for *ris de veau*.

Blanquettes de Agneau (Ragout of Lamb).—Cut some roast lamb into small pieces, and divide a few mushrooms into quarters, and fry them in butter; then add some flour, the quantity of which will depend on the kind of ragout required, and mix it well with the mushrooms. Now pour in some jus or stock broth, and add salt, pepper, parsley, and chives. Put in also with them the minced lamb, and simmer them over a gentle fire for half an hour, and thicken it before sending to table with two raw eggs beaten up. Continue to stir the contents of the stewpan until the eggs are well mixed, and then serve it up, with the juice of half a lemon squeezed in.

Pieds de Veau à la Poulette (Calves' Feet stewed with Herbs).—Boil some calves' feet, remove the bones, and cut the flesh into a number of small pieces. Place them in a stewpan with butter, mushrooms, seasoning herbs, and a couple of shalots, chopped up as fine as possible, together with salt, pepper, and two cloves. Expose them to heat over a gentle fire, and add some flour to thicken. Pour in afterwards some stock broth, and simmer at a gentle heat until the fluid is reduced to half. Then add three eggs beaten up together, and the juice of a lemon, some verjuice, or a little vinegar. Remove the pan from the fire, and mix well together.

Tête de Veau au Naturel (Calf's Head Boiled).—Take a calf's head, and having cleaned it well, place it in boiling water, and allow it to blanch for at least half an hour, then take it out and place it in cold water to cool it. Remove the upper jaw as far as the eye, and also the bones covering the top of the head. Tie up the head in a piece of thin white linen, taking care to preserve its shape as much as possible. It is also advisable before tying it up, to cover it over with slices of lemon to blanch it. Then beat up a handful of flour or potato-starch, in a saucepanful of water, add some butter, or bacon cut in small pieces, carrots, onions, parsnips, thyme, parsley, basil, salt, and pepper, together with a lemon cut in slices, and from which the seeds have been removed. Place the saucepan over the fire until the contents boil, then introduce the calf's head into it. When ready, serve it with *sauce piquante*, *sauce poivrée*, or *sauce à la ravigote*.

Pieds de Veau Frits (Calves' Feet Fried).—Boil some calves' feet, take out the bones, cut the meat in pieces, and place them to soak in a pickle made with vinegar, salt, pepper, parsley, chives, thyme, basil, bay-leaves, with some butter and flour, browned over the fire. Then remove the pieces, cover them with flour, fry them, and serve them with parsley. If preferred, the pieces may be covered before frying them with *pâte à frire*.

Mouton en Chevreuil (Mutton Cooked like Venison).—Steep a fillet of a leg of mutton for a day or two, according to the season, in a mixture of vinegar, onions, thyme, bay-leaves, salt, nutmeg, and pepper. Then roast the meat, and serve it with *sauce à la poivrée*.

Veau Rôti (Roast Veal).—Cover the meat with slices of bacon, and roast it for a considerable time before a very slow fire, by which means the juices will not be dried up, as they would be if cooked at a higher heat.

Fraise de Veau au Naturel (Calf's Crow Stewed) [the crow is the fat that covers the stomach and intestines of the calf].—Blanch in boiling water for a quarter of an hour, then dip in cold water to cool it, and allow it to drain. Then cook it in a stewpan over a slow fire, with slices of bacon, stock broth, and white wine, together with an onion, parsley, chives, thyme, and a bay-leaf. When done, boil down the contents of the stewpan, and add to it some small cucumbers and a little vinegar, and serve it as a sauce.

Fraise de Veau Frite (Calf's Crow Fried).—Cook the calf's crow *au naturel*, cut it in pieces, and steep it for an hour in a marinade composed of parsley, chives, and shalots, chopped up small, and mixed with butter, vinegar, salt, and pepper. Afterwards dip them in *pâte à frire*, and fry them of a brown colour.

Fraises de Veau à l'Orientale (Calves' Crows Dressed in the Eastern Manner).—Dress some calves' crows in the manner directed for *fraise de veau au naturel*, and before sending to table add some jus blond and a little curry-powder.

Langue de Cochon Fourrée (Preserved Pig's Tongue).—This is prepared in the manner directed for *langue de veau fourrée*.

Langue de Cochon à la Mayonnaise (Pig's Tongue Pickled in the Mayonnaise Manner) is prepared in the manner directed for *Jambon à la Mayonnaise*.

Lard en Planches (Rasher of Bacon).—Take some slices of fat pork, and rub it with dry salt, finely powdered, using one pound of salt to ten of pork fat. Lay the pieces in a pan, one on the other, and cover them with a board loaded with some heavy stones, and let them remain for about a month. Afterwards hang the bacon up to dry in a well-ventilated and dry room. The quality of the bacon will be improved by the addition of half an ounce of saltpetre to each pound of salt.

Chair du Chevreuil (Venison).—Before cooking venison, it should generally be steeped in a pickle composed of vinegar, salt, pepper, spices, aromatic herbs, parsley, chives, and sliced onions, for at least forty-eight hours, or, if it is a large piece, for five or six days. Venison may be cooked either *à la braise*, or roasted, and sent to table with *sauce piquante* very highly seasoned.

Lièvre (Hare).—The young rabbit resembles the hare, but may be distinguished from it by feeling the fore paws above the first joint; if they project a little the creature is a rabbit.

Lièvre Rôti (Roasted Hare).—Broil the hare slightly over the coals, to give firmness to the flesh, then cover it with slices of pork fat from the neck to the legs. Then roast it for an hour, and serve it with *sauce piquante* prepared with the crushed liver.

Filets de Lièvre en Civet (Slices of Hare in Hash).—Remove the flesh from a roast hare, and cut it in strips. Afterwards break the bones, and cook with them some butter and flour, onions, parsley, thyme, chives, salt, pepper, red wine, and stock broth. Boil them down to one-fourth, and having strained the gravy, put the slices of hare into it, and serve it up without again boiling it.

Lièvre en Civet (Hare in Hash).—Cut a hare into pieces, and save the blood. Then brown a spoonful of flour with some butter, and cook some small onions in it, and take them out when done. Then put in some pieces of bacon, and when sufficiently done, add the hare, and a sufficient quantity of water, or red wine and stock broth, to cover it, together with salt, pepper, mushrooms, parsley, chives, bay-leaves, and thyme. Boil down the liquid over a good fire to three-fourths, and then place the onions in it. Let it simmer for half an hour, put the blood in with it, and mix it thoroughly with the hash to thicken it.

Lièvre en Daube (Hare en Daube).—Remove the bones from a hare, break them in pieces, together with the head

Cut some leg of veal in small portions, together with carrots, onions, parsley, chives, bay-leaves, salt, pepper, and thyme. Simmer the whole in white wine for an hour and a half, and strain the liquor. Now line the inside of a stewpan with slices of bacon, put in the flesh of the hare, mixed with pork and round of veal cut in pieces, and season with pepper and spices, but no salt. Pour over it the liquor obtained by stewing the bones, and cover it with slices of bacon. Then cook it in a moderate heat, let it get cold, and serve it in a tureen.

Lapin aux Fines Herbes (Rabbit with Herbs).—Cut a rabbit in pieces, and place it in a stewpan with butter, parsley, chives, mushrooms, bay-leaves, basil, and thyme, cut in very small pieces. When done, add a spoonful of flour to thicken it. Now pour in some stock broth, or white wine, and a spoonful of *jus*, if you have it, if not, some more stock broth may be used instead. Season the whole with salt and pepper, and boil it down to the consistence of sauce. Before sending it to table, crush the liver of the rabbit, which has been previously cooked, and mix it well together with the gravy.

Lapin Rôti (Roast Rabbit).—Rabbits are roasted in the manner directed for *libvre rôti*.

Syllabub under the Cow.—Take a large china or other handsome bowl. If so fortunate as to possess a showy punch-bowl that will answer the purpose. In it mix together smooth the white of an egg, and a coffee-cupful of rich cream. Add half a pound of sugar broken into lumps, a pint of good white wine, the juice of a lemon, and a glass of brandy or rum. Stir all together, and take the bowl to a cow already half milked. Throw in a dozen ratafias, and get the dairymaid to milk the cow into the bowl till it froths so high that you fear its running over. Then carry it carefully to your store-room, and let it remain untouched until next day. You may sprinkle over the top, here, and there, a few small patches of grated nutmeg.

Clear Calf's Foot Jelly.—If you require only a small quantity of jelly, an ox-foot or two calf's feet will make a pint and a half, or perhaps more. Take care to select nice large, white-looking, fresh-boiled feet; and if you can buy them ready cleaned and scalded, it saves a great deal of trouble. Cut them into pieces, taking out any dark-looking bits; put them into a stewpan with six pints of cold water and the rinds of two lemons peeled very thin. Let them boil without ceasing five or six hours, until the liquor is much reduced. Strain it through a cullender or sieve, and let it stand all night. Next morning, take off all the grease you can with a knife, and wipe up the rest with blotting-paper. Put your rough jelly into a stewpan and melt it over the fire. If the jelly is for an invalid to whom wine is not allowed, add the juice of six or eight lemons; if not, the juice of three lemons, three-quarters of a pint of sherry, and a table-spoonful of brandy. Sweeten to taste. Mix these together, and let them just boil. Then take the jelly off the fire, and let it stand till no more than milk warm. Then set it on the fire again, and stir in the whites of six eggs without beating them, and half the shells broken small, keep stirring it constantly with a tinned iron-wire whisk, until it boils up with a fine white head. Let it stand to settle a few minutes. Have your flannel jelly-bag, quite clean, ready at hand; dip the pointed end into boiling water; squeeze the water out again, and then with a teacup take out the egg-shells and what jelly comes with them, and put them first into the bottom of the jelly-bag; after that, pour the jelly very gently, by cupfuls into the bag, and let it strain into the basin placed under it. If at the first straining it is thick and cloudy, it must be passed through the bag two or three times, until it runs clear.

Préure pour Faire Cailler le Lait (Rennet).—To prepare rennet for coagulating milk, take the stomach of a calf and empty it, taking care of the coagulated milk it

contains. Then carefully wash it, and replace the milk in it, with some salt. Tie with a piece of string the openings of the stomach, to prevent its contents from escaping, and place in an earthenware jar, with half a pint of brandy mixed with six ounces of water, and let it remain for a month in a cool place, taking care that the mouth of the jar shall be well covered. The contents are then to be filtered through unsized paper, and preserved in a well-stoppered bottle. Half a teaspoonful of this fluid will be sufficient to coagulate one pint of milk.

Fromage à la Crème (Cream Cheese).—Mix a glassful of good cream with a pint of milk, and add half a teaspoonful of *présure pour faire cailler le lait*. Mix them thoroughly, and place the vessel containing them in a warm place until the milk is coagulated. Then fill up a wicker basket of the shape the cream cheese is desired to be with the curds, and allow the whey to drain off for some hours. Then place it in a shallow dish, and fill it two-thirds full with good cream.

Crème en Mousse (Whipped Cream).—Take half a pint of cream, or twice that quantity of good milk boiled down to half. Sweeten it with a quarter of a pound of sugar, and add half a teaspoonful of powdered gum arabic previously dissolved in orange-flower water. Beat up the liquid until it is converted into a froth, and send it to table immediately. If preferred, the froth may be frozen by placing the vessel in a pan of ice, mixed with salt or chloride of calcium. The mouth of the vessel should also be covered with a saucer filled with the same composition, to prevent the contact of the warm atmosphere. The cream may be flavoured with anything that is likely to be agreeable, previously to beating it into froth. This cream may be coloured any tint that may be desired. The blue colour is given by the addition of a little sulphate of indigo, the yellow by an infusion of saffron. When these two colours are mixed in different proportions, greens of various tints are produced. A mixture of carmine and carbonate of potash yields a violet. A superb rose colour may be produced by the following process:—Tie up four ounces of safflower in a bag, and work it about with the hands in water. Then boil it in water in which a few grains of pure carbonate of potash has been dissolved. Filter the solution, and add lemon-juice as long as it forms a precipitate, which is then to be collected, carefully dried, and preserved for use. A small quantity of this substance added to the cream will be sufficient to colour it. Carmine may also be used for this purpose if preferred.

Crème en Mousse au Café (Whipped Cream with Coffee).—This is prepared in the same manner as *crème en mousse*, by the addition of a spoonful of a strong infusion of coffee. The whipped cream prepared in this way is of a light brown colour. It may, however, be obtained free from colour by the following process:—Take two ounces of coffee, and roast them until they assume a light brown colour. When ready, throw it at once into the cream, and let it remain for an hour before being used. If wished, some more sugar may also be added to these preparations.

Crème en Mousse au Chocolat (Whipped Cream with Chocolate).—Make four ounces of chocolate into a paste with boiling water, and add it gradually to the sweetened cream to which an extra quantity of gum has been added.

Crème à la Vanille en Mousse (Whipped Cream Flavoured with Vanilla).—Simmer some vanilla in cream for a few minutes, and then strain it into the cream before converting it into froth.

Crème en Mousse aux Liqueurs (Whipped Cream with Liqueurs).—The quantity of sugar and gum must be increased in this preparation half as much again, with the addition of half a glassful of any liqueur that may be selected.

TATTING.

TATTING, although (it may be considered) of recent introduction in modern times, is merely a revival of an art practised by our grandmothers. It has, however, been considerably extended in its processes, and rendered of more general utility by the manner in which it is now practised. The old tatting, although performed in the same stitch, was always worked with one thread only; and although in modern practice this still applies to simple patterns, a great advance has been made by the introduction of two threads for more complicated designs. A new element of variety has also been secured by the introduction of "purls" or loops.

As a description of work which can be conveniently carried in a very small compass, tatting is almost unrivalled; and it has another advantage in the extreme cheapness of its materials, while the work done in it is capable of being applied to a great number of purposes, such as, in white cotton, to edgings and insertions for trimming under-clothing and baby linen, for making caps, for trimming aprons of black silk or satin, and summer dresses in any washing material, for anti-macassars, d'oyleys, toilette-covers, &c.; and, in black, or a mixture of black and white, for parasol covers instead of lace, for trimming bonnets, &c. For these latter uses tatting is sometimes worked in silk, but, in our opinion, less successfully than in cotton.

The chief implement used in tatting is the shuttle (Fig. 1), in selecting which care should be taken to choose one that is long and not too thick, as it is easily re-filled and the cotton joined by a knot, whilst it is difficult to pass a thick and clumsy shuttle through the loops. The ring and pin (Fig. 2) is used by most tatters, and is undoubtedly useful in coarse work; but its place may be supplied by an ordinary pin of a large size, and for fine work the latter is in our opinion preferable. A shuttle in ivory would cost sixpence, and they may be bought of higher prices, one in tortoiseshell costing two shillings. Rings and pins also vary in price, according to material; a good one in gilt brass may be bought for sixpence.

About the best kind of white cotton that can be used is the "Boar's Head;" and for ordinary tatting, for insertion, edging, &c., 18 is the best size. For coarse work, such as anti-macassars, 16 should be used; for caps, &c., 20 and 30 will be found most suitable; for very delicate work 40 may be used. Any good unglazed sewing cotton of proper size may be made use of for black work. The "Boar's Head" cottons cost threepence-halfpenny per reel of 200 yards.

In proceeding to work, the end of the cotton is passed

through the hole in the shuttle, and the shuttle is filled with cotton to about level with the sides, but not fuller, as that would have a tendency to force the ends open. The ring is placed over the left thumb, and the pin allowed to hang down. The tatting-stitch consists of two parts; first, the cotton is taken between the thumb and forefinger of the left hand, passed round the first joints of all the fingers, as shown in Fig. 3, and brought back to between the thumb and forefinger. The shuttle is then passed under the cotton, between the fore and middle fingers (as is also shown), and back again over it, without turning the shuttle round, and leading the cotton which flows from it to the right. This will form a half-stitch in the circle of cotton upon that which flows from the shuttle; and this latter must be kept tight, or there will be danger, in beginning, of forming the stitch in it upon the cotton of the circle, which would make a knot, and prevent the cotton of the circle being drawn up when required.

The second part of the stitch resembles the first, except that instead of passing the shuttle first under and then over the cotton, it has, in this instance, to be passed first over and back under. By this double action, a number of

stitches, varying according to the pattern, have to be formed in succession, which are then to be drawn into a ring by releasing the circle of cotton from the fingers. This, in the old tatting, comprised the whole process, and the rings had afterwards to be sewn together to form the pattern; but in modern tatting the necessity for sewing together is obviated by the use of loops or "purls," which are made by introducing the pin through the first half of a stitch, and leaving it there till the cotton is secured by making the second half, when the pin may be removed. By hooking the cotton through the loop thus formed while making the next ring, the two are firmly joined.

In tatting with two threads, the end of the cotton on the shuttle and the end of the cotton on the reel have to be tied together in a firm knot. This knot has to be held between the thumb and forefinger of the left hand; and instead of forming a circle of cotton upon the fingers, that thread which is attached to the reel is twisted several times round the middle finger, as shown in Fig. 4. From this the stitches and loops are made upon the cotton in the shuttle in the same manner as before. Tatting with two threads thus admits of making lines either straight or curved, whilst with the single thread rings only can be formed, and for any elaborate pattern a combination of the two methods is necessary.

In Fig. 5 is shown a simple pattern, suitable for use as edging, to be worked in one thread only. This might well form a first lesson for a beginner. The cotton being taken upon the fingers, as shown in Fig. 3, eight stitches have to



Fig. 1.



Fig. 2.

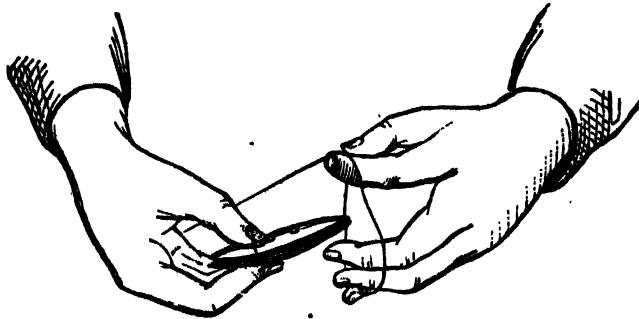


Fig. 3.

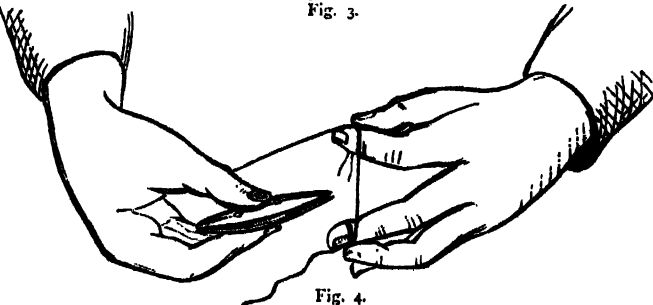


Fig. 4.

be formed, then a purl, then four stitches and a purl, then four more stitches, and draw the ring together. In the second ring, four stitches are made, and the cotton is hooked by means of the pin through the purl on the last ring; then eight stitches and a purl, then four stitches, and draw the ring together. For the third leaf of the trefoil, make four stitches, and join, as before; then four and a purl, then eight, and draw together. Before making the next trefoil, carry along the cotton for the length of the last; then begin and proceed as before.

Fig. 6 is edging worked with two threads. This has to be made at two operations; first, the double row of trefoils with the connecting stems, the rings being worked upon the thread of the shuttle, the stems upon that of the reel. When the length of this is completed, the line at the bottom by which it is to be sewn to the linen, with the small connecting rings, are added; the former being worked on the thread of the reel, the latter on that of the shuttle.

Fig. 7 is a pattern which, as we have shown it, is best adapted for laying on dresses, aprons, &c., as a trimming, or, if the squares be brought side to side instead of corner to corner, it will make a good insertion pattern. The stems and rings are of course worked on two threads, as in the last. When one square is completed, the cotton must be broken off and the joining made, as shown, by the purl.

Fig. 8 is a round pattern, suited for an anti-macassar, by simply repeating it till the desired size is reached, or for a d'oyley, by surrounding it with circles of rings and lines like the two outermost, but of proportionately larger size in their details. In working this the four rings in the centre are made with one thread; the cotton is then broken off, and all the successive circles afterwards are made with two threads. The cotton must be broken off at the completion of each circle.

Tatting is a description of work for which no great number of patterns is required; its elements are so simple that, by merely introducing well-arranged repetitions, it is easy to produce a variety of pleasing and original designs, and one of its peculiar advantages is, that any pattern can readily be altered to suit the shapes and requirements of a variety of purposes; unlike most

kinds of work, therefore, it never requires to be cut. The designs used for white work are also equally applicable for grey or black cotton.

The work, when finished, is invariably dirty from contact with the hands, and it is not always easy, owing to the closeness of the stitches and the hardness of the thread, to clean it. The better plan is to soak it in clean spring water for twenty-four hours before washing.

Tatting work should be starched with very thin starch only, and every loop should be picked out with a pin before ironing, which should be done with a very cool iron. Exceedingly fine tatting should be got up without the use of starch.



Fig. 5.

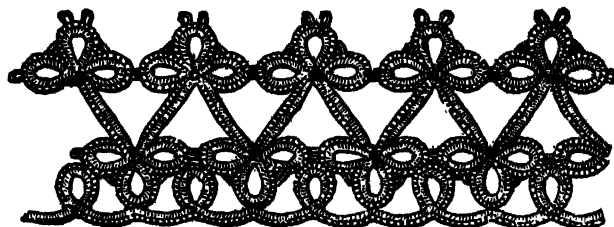


Fig. 6.

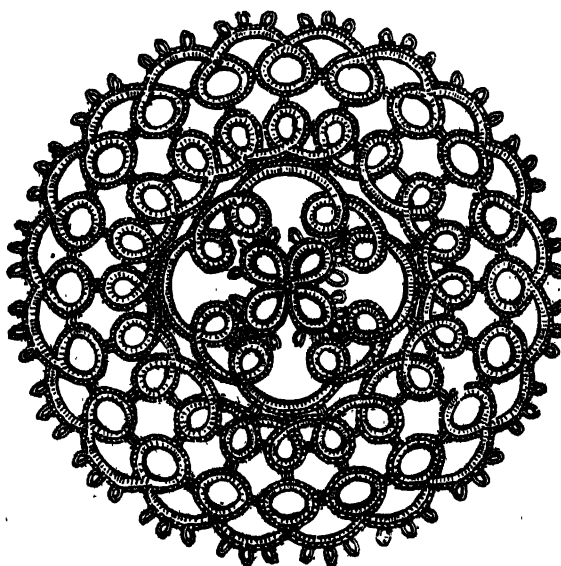


Fig. 8.

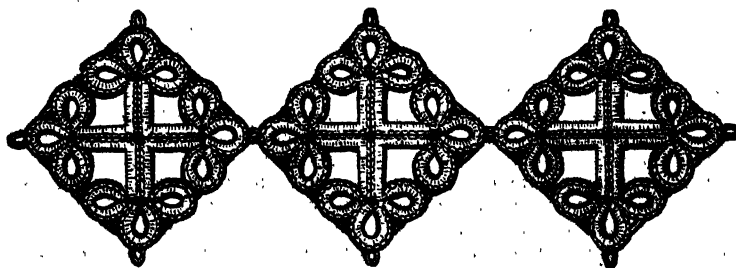


Fig. 7.

DOMESTIC MEDICINE. LVI.

WATER IN THE HEAD.

THIS disease is not very well fitted for popular treatment. We content ourselves with a few hints by which its existence may be recognised.

One remark is of the greatest importance, namely, that many children are supposed to have water in the head who are quite free from it. This is particularly true of young infants in summer time, who are teething or being brought up on artificial food. Such children in hot weather very readily get an intractable diarrhoea, vomiting, and purging; they become exhausted, and lie in a very prostrate state, sleeping with their eyes half open. To bystanders, and even sometimes to doctors, it seems as if the baby's head

were affected; and so, perhaps, it is, but only in a secondary way. The child is depressed and prostrated, exhausted, in fact, by profuse discharges, and, unless the vomiting and the purging can be restrained, it may get worse and worse. The means for restraining these com-

plaints will be found under the head of "Diarrhoea," in the earlier papers of this series, describing the diseases of infants. Let it suffice here to say that these are not, properly speaking, cases of water in the head.

There are, roughly speaking, two kinds of case of water in the head—one the chronic, or slow variety; the other, the acute. The case of chronic water in the head is not unfamiliar. A child's head is either large at birth, or begins to enlarge; and the enlargement may proceed

to a painful and disfiguring degree. Before the enlargement of the head begins to be noticed, it will often appear that the child somehow or other is not altogether right and strong. There may be great slowness of the process of teething, great weakness and flabbiness of the limbs, irritability and peevishness of temper; sometimes a liability to spurious or false croup, as it is called; or there may be actual convulsions from time to time. Nearly always it will be noticed that a falling off in the child's health precedes the enlargement of the head, that it grows thinner, and loses its healthy appearance. The whole body of the child is diminutive, including the face, which has the effect of making the head appear larger. The eyes are displaced so that the white of the upper portion protrudes below the upper eyelid, and the pupil is half hidden below the lower lid. In this form of water in the head, the child is generally young when the disease begins, though it may extend over many months or years.

Causes.—The causes of this condition are various, and somewhat obscure. Generally there is some weakness of constitution in the child, either dating from its birth, or induced by improper or insufficient food. The exact nature and probable causes of this weakness can only be investigated properly by a medical man.

Treatment.—We have not much to say on this subject, because the case is far beyond domestic treatment; and it must be confessed that even doctors cannot do much generally to abate either the size of the head or the constitutional defect on which the disease seems to depend. As the constitution is weakly, it is of vital importance to sustain the health of the child. Diarrhoea should be cured. Good milk should be given plentifully to children under twelve months. After this, in addition to milk, a little beef-tea may be given as a part of the diet. Perhaps cod-liver oil is the most important remedy. Of course, fresh air is of the greatest value.

ACUTE WATER IN THE HEAD.

This is a very different disease from the above, and one little known to non-professional people. The cases of it are not numerous. They occur, for the most part, at ages when the bones of the head are fixed, and they cannot be distended with fluid as in the chronic form of water in the head described above, and common to young children. In this disease there is an excess of water in the central parts of the brain, but it is not in great quantity, as in the chronic variety. It has to be measured by drachms or ounces, not by pints or quarts.

Symptoms.—Like the above disease in its onset, there is generally some falling off in the appearance of the child. He is a little thinner, and does not eat so well. After days or weeks of slight ailment, with or without occasional headache, there is a more decided complaint of pain in the head. This is generally a sharp pain, which may make the child scream out and be incapable of bearing the light. Coincidentally with these symptoms there are two or three others, particularly *constipation of the bowels*, so that they can scarcely be got to act at all, and *vomiting*. The vomiting cannot be traced to any error of diet, and it is urgent, following everything—often even the taking of a little water. These symptoms may be accompanied with a degree of feverishness which may cause the complaint to be taken for remittent fever. The pulse is at first quick and then becomes slow, and then again quick. If the disease is unchecked, insensibility comes on gradually, accompanied, perhaps, with squinting or convulsions.

Causes and Treatment.—This is a disease of grave character, and, fortunately, not common. It implies a weakness of constitution, and often, at the same time, an excessive sensitiveness of the brain and nervous system. All families with delicate or consumptive tendencies should treat children that get thin carefully—suspend

their lessons, send them to bed soon, and send for the doctor when anything is wrong with them. Where any such case has happened in a family, the other children should be carefully protected from four bad things—loss of sleep, exposure to cold with insufficient clothing, too much teaching, and improper food. Good milk is a very important element in the diet, and of all medicines calculated to prevent this disease, cod-liver oil is the best. We give no particulars of the treatment of the disease, for it is quite beyond the sphere of domestic medicine.

FRUIT DAINTIES.—V.

ALMONDS.*

Almond Tart.—Roll out a sheet of good paste an inch thick, make it in the shape of a tart, and place on it some almonds blanched and beaten into a paste with an equal weight of sugar, and also some cream, grated nutmeg, and bread-crumbs. Bake the tart in an oven at a gentle heat, taking care not to close the door.

Another Kind of Almond Tart.—Cover a dish with some good paste, and lay on it half a pound of almonds beaten up with a little water, and mixed with a pint of cream, the yolks of some eggs, and half a pound of powdered loaf-sugar. Lay strips of paste across the top of the tart, in diamond shape, and bake it in a moderately heated oven. Before sending it to table place a piece of candied citron or lemon-peel in each diamond-shaped space.

Almond Jumbles.—Beat into a paste a pound of blanched almonds with water, add double that quantity of loaf-sugar and some white of eggs beaten into a froth. Put them in a pan over a moderate fire, stirring the mixture continually until it becomes sufficiently stiff. Let it get cold, and then roll it into jumbles and lay them on plates covered with sugar and bake them in a cool oven.

Another Way to Make Almond Jumbles.—Make a paste of two pounds of loaf-sugar and the same quantity of fine flour, with whites of eggs beaten up. Add to it two pounds of blanched almonds, a pound of butter, and a pint of cream. Roll the paste into jumbles and bake them.

Almond Prawlins.—Take equal parts of the best Jordan almonds and loaf-sugar. Put the sugar into a pan with a little water and boil it into a syrup, then add the almonds, and continue to boil until they are candied, taking care to stir them continually until dry. Then empty them into a dish, and remove any loose pieces that may adhere to them. Afterwards put them back into the pan, and place the pan over a slow fire until the oil begins to exude from the almonds.

Almond Custard.—Beat two pounds of blanched almonds into a paste with water, and mix them with two quarts of cream, the whites of twenty eggs, and one pound of loaf-sugar. Place the custard into moulds, and bake at a moderate heat.

Almond Jelly.—Put a sufficient quantity of gelatine into a quart of water to convert it into a jelly. Then make three-quarters of a pound of blanched almonds into a paste by beating them up with fifteen spoonfuls of cream and two of water. Add them to the jelly, together with a quart of cream and a sufficient quantity of sugar to sweeten it. Simmer the whole at a gentle heat until it is ready to boil, taking care to stir it continually. Then remove it from the fire and continue to stir it until it is almost cold, and pour it into moulds, where it must remain for twenty-four hours. When required for use, place the mould for a moment in warm water, and it will then turn out easily.

Almond Cheese.—Curdle some cream by the addition of a little sherry wine, then strain off the whey, and mix the curd with some almonds previously beaten into a paste. Put it in a pan over the fire, and add to it some finely-powdered white sugar, by some quantities at a

time, and mix them thoroughly together. Then pour out into a deep plate, and mould the paste into the shape of a cheese. It is then to be placed on the dish in which it has to be served, some fine sugar sprinkled over it, and allowed to cool.

Iced Almonds.—Beat up the white of an egg with powdered loaf-sugar, and roll some blanched almonds in it. Then lay them on paper, and bake them in an oven at a gentle heat.

Almond Butter.—Beat up sixteen eggs in a quart of cream, put them in a pan over a slow fire, and stir continually until they are ready to boil. Then pour in half a pint of sherry wine, continuing to stir until it curdles. Then strain off the whey, and place the curd in a stone or wooden mortar, and gradually add to it four ounces of blanched almonds, previously beaten up with water, and also a pound and a half of powdered loaf-sugar. When the whole is completely mixed, preserve it in pots or glasses. It will keep good for some months, and may be eaten on bread instead of butter.

Almond Cream.—Make a pound of blanched almonds into a paste, with a little water, and mix it with two quarts of cream. Then simmer them with a stick of cinnamon, broken into small pieces, and stir it continually while it is on the fire. Afterwards sweeten the almond cream with the best sugar, and send it to table.

Almond Cream may also be prepared in another way.—Beat up a pound of almonds in the manner already directed, then simmer two quarts of cream and sweeten it; add the almonds, and, having strained the cream, put it in a pan over the fire, and continually stir it, until it becomes sufficiently thick for use.

Grey Crisped Almonds.—Boil some loaf-sugar with a little water into a syrup, and add the same weight of almonds as that of the sugar used. When the almonds begin to crackle, remove them from the pan, and stir them continually until cold. If any sugar is left, place it again over the fire, continuing to stir until it adheres to the almonds.

White Crisped Almonds.—To prepare these, the almonds should be previously blanched and peeled. They are then placed in the syrup, continually stirred, boiled for a short time, and then withdrawn.

Red Crisped Almonds.—To give the almonds a red colour, some colouring prepared from cochineal is added to the syrup in which they are boiled.

Another Way to Prepare Almond Paste.—Pound some almonds, as before directed, and put them into a large pan, and mix with them some syrup, and stir them well together; then put the pan over a fire, stirring it continually, until the paste becomes detached from the sides of the vessel. Then sprinkle a quantity of powdered sugar on the inside of a dish and spread the paste on it.

REMOVING FURNITURE.

II.

BEFORE the removal, the carpets should be taken up and beaten, and handed over to the upholsterer to be remade. The large upholstery firms will, for their customers, send a person to the new house to measure the rooms, and will remake and lay down the carpets. The ordinary charge is threepence per yard. All cleaning of furniture before removal is merely wasted labour, and it will better be done once for all at the new house. All the bedding and bedclothes belonging to each bed should be tied into one bundle, which will obviate any confusion in arranging the beds for the first night, when all in the house are tired, and there is little spare time. In tying up books be careful to put wedges of paper between their covers and the string, to prevent the former being cut by the latter. It is a better plan if old packing-cases (not very large)

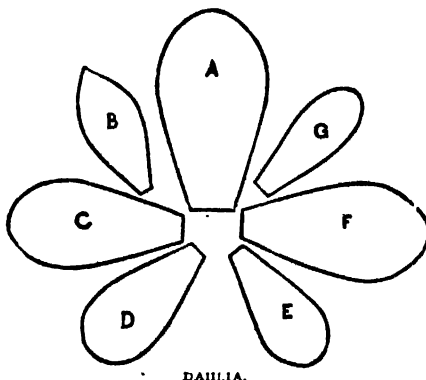
can be procured, to pack books in them, with waste paper as a protection from injury. For packing fragile things, hay is generally best, being at the same time soft and elastic; latter-math hay—that of the second crop—is to be preferred, as containing no bents or grass-stems. Some delicate ornaments, however, which will not wash, cannot be packed in hay, which would make them dusty, and for these, clean paper shavings rolled up are best; they gradually unroll, and thus, acting like spiral springs, keep the article tight. The great points in packing glass, china, and all fragile things are, first, to take care that no two pieces touch each other, or the sides of the case; and, second, that everything should be packed tightly; if there is just sufficient softening to prevent contact it will always be more effectual than a large quantity. There is always danger of the stoppers of decanters and cruets being lost in transit, and they should therefore be tied to the necks; it is also well that such bottles should be emptied before they are packed, as they are likely to leak and do much damage. We have already mentioned that the most approved method of removing looking-glasses is by laying them face downwards on mattresses; we would also advise that “looking-glass” should be chalked on the back of each, as it is possible that when the face is not seen one might receive a blow which would fracture it; looking-glasses should at once be fixed on the walls on being brought into the new house, as they are always in danger while standing about. Pictures and framed prints are best packed in shallow cases, only a little deeper than the thickness of two frames; one picture is placed in the bottom, and screws are driven through the bottom into its back; another is placed on the inner side of the lid, and screwed in the same manner, no further packing being required; a deep case may be used, but there must then be cross-pieces to which to screw the picture-frames. Wine in bottles is best packed in boxes with sawdust, which is at the same time elastic and a bad conductor of heat; neither extremely hot nor extremely cold weather is good for the removal of wine. Before unpacking it is well, for the sake of cleanliness, to lay down dusting-sheets to receive the hay and other softening, and the whole of the contents of boxes and packing-cases should be turned out, or small articles may remain in their bottoms and be lost.

The warehousing of furniture and other goods is a subject nearly allied to the removal of them, and a few remarks upon it would seem desirable in this place. Many of the warehouses for this purpose are in connection with the establishments for removing, and have fire-proof rooms. No lights are allowed, and these warehouses possess so great a reputation for security that goods placed there can be insured for lower rates than at other places, the general charge for insuring at a warehouse being nearly double that demanded on the same articles when in a private house. For separate articles the charge for warehousing in a fire-proof room is sixpence per article per month, regardless of size; and the whole of the furniture of an eight-roomed house may be warehoused there at about £2 per month. At some other establishments lower prices are charged, and separate packages are received at from fourpence upwards, whilst a compartment large enough to contain the furniture of an eight-roomed house is to be rented at two and a half guineas per quarter. At some of these places rooms are kept at special temperatures for the storing of musical instruments. On goods being deposited an exact inventory is taken, and a copy of it sent to the depositor. The proprietor of the warehouse is usually responsible for the value of the property, except as regards damage by fire, against which, however, an insurance may be effected for the owner, though some descriptions of property, such as deeds, jewellery, and works of art, have generally to be made the subjects of special agreement.

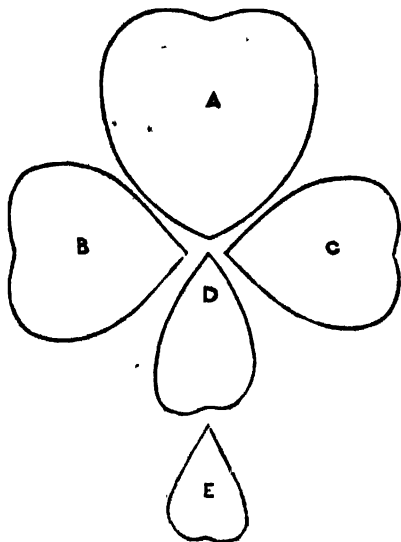
WAX FLOWER MAKING.

II.

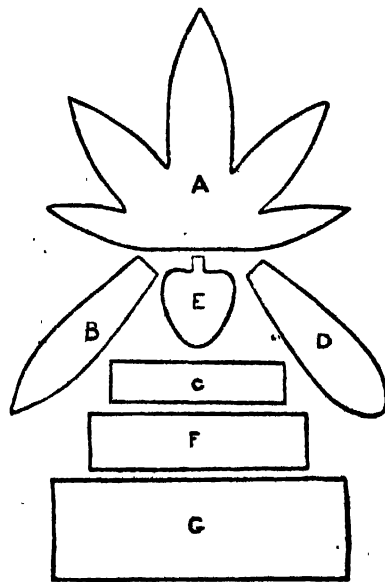
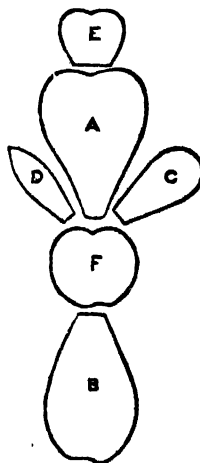
The Dahlia.—The flowers of the dahlia are modelled thus:—Select seven sheets of any coloured wax preferred, except blue, green, brown, and black. Cut from them twenty pieces of the pattern A, the same number of C and F, thirty of E, but only ten each of D and G. (The illustrations are drawn to half scale.) The smallest pieces are rolled round a wire to bring them to the proper shape. The next size are left more open at the top, and the others still more open than the preceding ones. The smallest pieces are then to be fastened round one end of a thick wire, which represents the stalk, and the rest of the petals are arranged round them, the largest sizes being placed outside the others. Then cut out fifteen pieces of the shape marked B from some sheets of green wax, and arrange them round the base of the flower to form a calyx. The wire forming the stalk is then to be covered with sheet-wax, to hide the material of which it is composed.



DAHLIA.



MOSS ROSE.



PASSION FLOWER.

wax directed towards the centre of the flower while attaching the small petals. When the large petals are put on, it is necessary to remember to put them on lower than the others, and also to keep the dull side of the petals directed inwards.

After curling the sepals already cut from the lemon-coloured wax, they are to be applied to the flower, the small sepals being on the exterior. The stem should then be covered with green sheet-wax, and afterwards tinted with a little brown powder, to imitate the real flower as closely as possible. Some leaves should then be prepared in the manner previously directed, and arranged on the stalk.

Passion Flower.—To imitate this, cut off a piece of wire from the hank of sufficient length to form the stalk. Form one end into a loop, and cover it with wax to form a seed-cup. Then form the pistil, and colour it purple to imitate the natural flower as closely as possible. Now cut five stamens out of light green wax, and colour them with light yellow paint, and arrange them at equal distances around the pistil. A piece of white

White Camellia.—To form this flower, cut from a sheet of thick white wax ten pieces the shape of the pattern marked A, the same number of those marked B, and five each of C and D. Then cut three pieces of E, and the same number of F, to form the calyx of the flower. The wax for this purpose should be of a pale lemon tint, and doubled. The pieces A, B, C, D are then to be coloured at the base with a slight tint of yellow, care being taken to imitate the natural flower as closely as possible. When this is done, E and F are to be tinted with green in a similar manner. The stem is made with a piece of thick wire, one end of which has been bent over several times, and covered with about half a sheet of white wax, compressed into the shape of a plum-stone.

The pieces cut from the white wax, and which form the petals, are then to be curled into shape by the curling-pin, and attached to the foundation of wax at the extremity of the wire. While doing this, great care must be taken to copy the arrangement of the petals in the natural flower, and also to keep the glossy side of the

sheet-wax is then to be cut the shape of the pattern C; one edge is to be cut to form a fine fringe, and then coloured a deep purple, and fixed round the seed-cup, taking care to turn the purple surface inwards to touch the pistil. Double a sheet of white wax, and cut from it a piece of the shape of the pattern F, and snip the edges to form a fringe; and after having coloured it purple, roll it round the base of the preceding piece. Then cut another piece like G, and cut the edges nearly to the bottom of the wax to form a deep fringe; colour it to imitate nature, and attach it round the preceding.

To form the petals of the flower, three sheets of white wax have to be taken. Lay them one over the other, press them between the palms of the hands to make them adhere, and cut from them five pieces like the pattern marked B, and the same number of those marked D. Colour the pieces, on one side only, a pale yellowish green, imitating the tint of the natural flower as closely as possible; curl their edges with the curling-pin, and mark them down the centre with the stem of the curling-

pin, and arrange them round the centre of the flower with the white side inwards. Then take the five pieces marked D, and place them in the spaces left behind the other petals.

We have now to cut out three pieces of the shape E, to form the calyx, which should be done with the same kind of wax as that of which the petals are formed, and they require to be coloured in a similar manner.

To form the leaves, cut them with the aid of the pattern A from two sheets of dark green wax. Then insert a piece of fine covered wire between the two layers of wax, in the manner previously directed when we treated about leaves. Afterwards curl the edges, and mark them down the centre with the stem of the curling-pin. Then attach them to the stem of the flower, and cover the wire with light green wax.

Moss Rose.—The mode of constructing a moss rose was described in the previous article (page 244 of this volume), but the reader is requested to correct some inaccuracies in the references. All the diagrams are drawn to half scale, and for the moss rose there should be twenty leaves of pattern A, five of B, ten of C, the same number of D, and twenty of E.

FLOATING DUST.

EVERYONE must have noticed that when a beam of sunshine enters a darkened room, it lights up and discloses to us a quantity of particles floating in the air. If, instead of the sun's rays, we employ some very powerful artificial light like that furnished by electricity (under the name of the electric light), the same appearance is still presented. Indeed, the number of floating objects thus revealed to us is so great, that the air through which the light passes appears almost semi-solid. The objects with which the atmosphere is thus loaded are *particles of dust*.

If a glass tube is arranged in such a manner that the beam of electric light must pass along the inside of the tube through its entire length, the particles of dust will be still plainly visible, owing to the dust reflected from their surfaces; but they may be made to disappear by making the glass tube hot with the flame of a spirit-lamp. This is caused by their being burnt up by contact with the heated tube, thus proving that they are of an organic nature.

The exact nature of the dust thus present in the atmosphere may be ascertained by agitating a small quantity of pure distilled water in a vessel of atmospheric air. If this be repeated for a number of times, continuing to employ the same portion of water with fresh quantities of air, all the particles of dust present in the air contained in the vessel will be removed from it, and retained by the fluid. When a drop of liquid is examined under a microscope, it will be found teeming with germs of organic matter. These matters are found to be most abundant in the atmosphere of large towns like London or Manchester, but they may also be discovered in the air of the country. It may give some idea of the immense quantity present in the atmosphere of large towns, if we mention the results obtained by Dr. Smith from the air at Manchester. For the purpose of investigation, he shook up some water in a bottle of atmospheric air, until all the dust was removed, this experiment being performed in the open air, and at a time when the atmosphere appeared perfectly free from dust; and the same water was employed to wash five hundred bottles full of air. The fluid was then carefully examined under the microscope, when it was found that as many as "two hundred and fifty thousand spores or germs of organic matter" were contained in each drop of liquid. And it has been ascertained by careful calculations founded on these results, that any person breathing that atmosphere—although in the open air, and at a time when it was apparently free from dust—would

receive into his lungs no less a quantity than thirty-seven and a half millions of these organic germs alone, without counting other impurities contained in the dust, in the course of ten hours.

Our readers may perhaps ask, what becomes of the organic matters and other particles of dust we thus receive into our lungs every time we respire—whether they are retained in the air-passages of the lungs, or expelled during expiration. That much, if not all, the dust is retained in the lungs can be shown by the simple experiment of filling the tube through which the electric light is thrown with the expired air given off from our lungs by a deep expiration. If this be carefully done—at the same time taking care that the moisture present in the breath is prevented condensing on the sides of the tube, by warming it, as it would interfere with the success of the experiment—the air expelled from the lungs will be found to be free from all particles of dust.

The facts to which we have called attention are of much more importance than may at first sight appear. For example, it has been long known to every one who has had any experience in these subjects, the great danger which attends the breathing of air previously respired by sick persons; more especially when they are suffering from any infectious disease. But this is only what might be expected when a healthy person receives into his lungs particles of infectious matters thrown off by respiration from the sick.

Dust is suspended in the atmosphere by currents of air, for it is found that when a confined portion of air is allowed to remain at rest for a few days—as, for example, in a glass tube or flask—the particles become deposited on the sides of the vessel. And when the tube or flask is then examined by electric light, no floating particles can be detected in it.

The question may perhaps occur to some who read this article, whether the dust cannot be removed from the atmosphere by filtration, in the same manner as fluids are filtered from the solid matters suspended in them; and, if the matter be subjected to experiment, this will be found to be the case. For it is only necessary to insert a piece of cotton wool (loosely packed) into the nozzle of a pair of bellows, and fill the tube through which the electric light is passing with air thus filtered, when it will be found free from every particle of dust.

Before concluding these remarks, attention should be drawn to the extremely important lesson that these facts teach, namely, the very great importance of perfect cleanliness to the preservation of health, and—especially in seasons when epidemics of contagious diseases are prevalent—even to life itself. The floors of rooms should be very carefully scoured with soap and water in every part, since it is not sufficient to sweep out the dust from rooms, as some of its particles are sure to rise in the atmosphere, and collect behind furniture, in crevices and similar places, from whence at some future time they will become dislodged by the vibration of the room or currents of air, and rising into the atmosphere are respired, and may thus become at some future time—for who can say that they will not?—a source of danger both to ourselves and others.

SOCIETY.—X.

BOUQUETS, FLORAL DECORATIONS, ETC.

It is hardly possible to attach too much importance to the minor arts of pleasing practised in all highly civilised society. Whether the expression assume one form or another it little matters, provided certain acts be understood to convey the desired intention of goodwill. Present-giving, in all climes and at all times, has been the channel through which propitiatory greetings have been effected;

and enormous sums of money are sometimes expended in the East upon the merest stranger, provided the object of his mission to foreign parts be of a nature to demand unmistakable assurances of cordiality. In the cold calculating West, costly presents to strangers are liable to be regarded as bribes, and are consequently not in general favour; but no people are more sensibly flattered than ourselves by those unassuming and graceful acts of courtesy which some of our Continental neighbours bestow with so much tact on suitable occasions. In such gifts expensiveness is not the chief consideration; the aim is rather to gratify a personal taste entertained by the intended recipient.

Flowers, from the universal fondness with which they are regarded by all persons of refinement, are particularly adapted to express the wishes desired to be conveyed by actual token; hence the custom of giving bouquets upon every occasion which marks an epoch in the life of those with whom we are acquainted.

The bouquets at present in most general use are those in which the flowers of the season are skilfully arranged according to their colours. Fragrance is made to be subservient to colour; and, provided a bouquet *looks* well, very little attention is paid to the nature of the flowers of which it is composed. There are, it is true, conventional observances in the selection of flowers for certain occasions, and the *fashion* of the bouquet is seriously considered by bouquet-makers; but beyond these rules the art of making bouquets is most simple, and may be acquired with ease by any one not absolutely devoid of taste.

To begin at the beginning. Having collected the flowers to be used, each kind should be sorted, and laid on a good-sized table or tray. All superfluous leaves should be stripped from the stem, leaving only sufficient stalk to meet the required need. The *bouquetière* should then discover, by placing the flowers beside each other, what colours are likely to blend well, and decide on the order in which they would be most advantageously displayed. Every collection of flowers should be designed in accordance with its contemplated surroundings.

First, with regard to garden nosegays, such as one friend commonly sends to another, either by hand or some other mode of conveyance. If intended to consist of various kinds of flowers, a nosegay of this kind should be made up flat, to admit of being laid down during the journey, without injury to the blossoms. It is not inappropriate to remark that a good amount of green sprays, or similar "backing," should be gathered before commencing the task of putting the flowers together. With plenty of well-selected foliage, a very few flowers may be made to produce a charming effect, whilst, without such assistance, the best assorted flowers may fail to show to advantage, owing to the sudden contrast in which rival shades are forced to appear. As a general rule, the foliage of each flower supplies its own most suitable surrounding, but with a little ingenuity other leaves and sprays may be made to do duty with good effect. Sprays of lilac, tender boughs of chestnut, twigs of bay, lavender, or southernwood—commonly called "old man"—are to be found in most gardens, and form a very useful contribution. Even some branches of fruit shrubs, such as currant bushes, are suitable; and, best of all, for quite the back is a large-leaved stem of rhubarb. The leaf of the latter plant may serve, not only to keep the flowers cool and fresh on the journey, but it may also be used as an envelope, to exclude the air and light of a summer day.

An accustomed hand at making up garden nosegays finds no difficulty in accomplishing her graceful art whilst chatting with, perhaps, the friend for whom the gift is intended. A very prettily-shaped and portable bouquet may be made up in the garden in the following way:—Choose a smooth woody piece of a branch, or even a small

stick of ordinary firewood will answer the purpose; tie on it the end of a good-sized ball of wool; then begin to fasten on the flowers by continually winding the wool round the stem of each flower, as, one by one, they are added to the bouquet. Flowers that have the shortest stems should be placed at the top of these kinds of bouquets, reserving those of which the stalks are longer for the base. A plentiful gathering of foliage should be kept for finishing the bouquet. Before enveloping the nosegay in paper, all the stalks should be evenly cut off. When finished, the bouquet described should present the appearance of a tiny May-pole.

In garden-bouquet making, it should be borne in mind that the flowers will in all probability be taken apart and placed in vases, on reaching their destination; care should therefore be exercised not to injure the flowers by packing them too closely together, still less by winding the thread too tightly round the stems. People who are very thoughtful in the latter respect use bass in preference to cotton; but as the latter is seldom to be obtained of very great length, it is better to have lamp-cotton at hand for the purpose. The latter (sold in balls) retains the moisture of the plants, and does not cut the stems. Flowers that are intended to be sent any distance should not be sprinkled with water; the effect of doing so is to cause the blossoms to shed their leaves.

In making bouquets to be placed in halls and on staircase landings, the flowers chosen should be of the most effective kind, surrounded by plenty of foliage. Lilac-branches are especially useful for hall decorations, and afford excellent contrast to such flowers as peony-buds, laburnum-sprays, &c. Strongly-scented and aromatic flowers and shrubs are appropriately placed in halls; the perfume is then wafted through the house, and is agreeable without being overpowering. Such shrubs as lilac and syringa, when in bloom, are inadmissible in sitting-rooms. The same may be said of wall-flowers. Few persons can bear the odour of such plants without inconvenience in a close apartment, although they may enjoy the fragrance when blended with outer air.

The vases in which flowers are placed should be in accordance with the surroundings of the situation. For instance, terra-cotta, Wedgwood, and majolica ware are most suitable for halls and staircases; whilst delicate biscuit-ware, fine porcelain, and Bohemian glass, are better adapted to drawing-rooms, and clear crystal to the dinner-table.

Sideboard decorations are most appropriate when composed of flowers growing in their own pots, concealed by either a *cache-pot* made of paper or woodwork, now in such general use, or sunk in ornamental china-ware or majolica. Bronze ornaments, made expressly to contain flowers, are very suitable as sideboard decorations. Vines growing in pots are the most elegant addition to a sideboard, but are not in place on a dinner-table, although frequently inappropriately placed there.

Drawing-room floral decorations should be of the choicest and most studied kind—choice, because most exposed to close observation, and studied, because the suitability of the flowers to the purpose depends rather upon the design, material, and form of the receptacle, than on the actual quality and fragrance of the flowers themselves. People may say, "roses are always beautiful, and the violet is always sweet." Whilst accepting to the fullest extent the truth of the assertion, it must be admitted that roses, violets, and most kinds of flowers are capable of having their inherent charms increased by judicious juxtaposition. The violet, for instance, would show to disadvantage in a vase of brilliant Bohemian blue; and the glory of the red rose would be diminished in a basket of coral-work. Happily common sense dictates that such attempts would be a violation of good taste; but a similar offence is too often committed after a minor fashion

when a number of flowers are crowded together into a vase, without any regard being paid to the order in which they are placed, or the style and colour of the vase itself. One frequently sees the most extravagant use made of choice flowers, through sheer thoughtlessness. Taking roses as the most familiar example, nothing is more general than to see masses of roses thrust into a vase, with little or no foliage to relieve the contrast of shades. Now roses, as a rule, never show to so little advantage as when seen together in large quantities; at the same time, few flowers are equally beautiful when examined separately. On this account it is desirable that a sparing use as to numbers should be made of the rose, and greater pains taken to display the characteristic beauties of each.

When it is desired to show any number of roses in one group, as much of their own foliage as can be obtained should be made use of. When mixed with maiden-hair fern, and a similar class of green spray, their beauty is greatly enhanced.

The decking of an epergne for the dinner-table is a piece of handiwork in which most ladies of late years have had considerable experience. The times are gone by when bon-bons and whipped cream were considered the most appropriate use to be made of handsome centre-pieces. Flowers are now-a-days as indispensable a part of a feast as choice viands. So long also as flowers do not trench on the comfort and ease of guests at a dinner-table, the substitution is a decided improvement on past practices; but, unfortunately, a tendency is too often displayed to make flowers the leading feature at the dinner-table, and to place a bouquet, not only in the centre of the table, but at the corners likewise, in the middle of salt-cellar, and in all kinds of vases at every open space not pre-emptorily demanded by the service of the table. Nor is the perfume of a large mass of flowers taken into consideration. Many of the most highly-scented kinds that are delightful to look upon are very distressing to the olfactory sense, especially when combined with the fumes of highly-seasoned viands and aromatic fruits. The mixture of odours at many modern dinner-tables, is a far more severe trial of strength than the digestion of the fare provided, and should be taken into merciful consideration by kind-hearted hosts and hostesses.

The chief considerations which should influence the decision respecting the amount of floral decorations employed for the dinner-table, should be the space at disposal. Whether much or little, the first requisite is to leave sufficient room for plates to be removed, bread to be broken, and glasses filled, without making each movement an effort of the mind to guard against accidents. If a dinner strictly *à la Russe* be in contemplation, of course greater space is at disposal. Even in the latter case it would be well if the hostess, before deciding on the number of flower-vases she would place on the table, first took the precaution of having the necessary plates, knives, forks, and phalanx of wine-glasses set out in their appointed places, and afterwards made up her mind as to the amount of room left for the display of flowers and vases.

The extravagant use of flowers which characterised the recent revival of floral table decorations, is now considerably lessened. The height, also, of table ornaments is much reduced, and wide-spreading trays, mounted on slender stems, are no longer considered in good taste. The base of the epergne is now the principal scene of the bouquet-maker's art, the most approved designs being those epergnes in which the summit is adapted to the reception of a few flowers only. Epergnes in the form of a mirror-frame, composed entirely of glass, are coming into favour, and are considered most appropriate. The idea is open to imitation in light rustic work. The bases of the above epergnes are of tray-like form, and were the chief receptacle of flowers. A small saucer on the top, completes the design. From the smallness of the

space to be filled, none but the choicest flowers should be placed in vases of this kind. It is indispensable, also, that the foliage should droop over the sides of the receptacle to the table-cloth. For this purpose, the common brake fern will be found the most useful, relieved by sprays of fuchsia in bloom, or similar flowers. The effect is as pleasing as need be desired.

The base of most epergnes, especially if composed of zinc, should be filled with wet sand.

PERAMBULATORS.

WHILST the importance of abundant exercise in the open air for young children has always been acknowledged, there were, before the invention of perambulators, serious difficulties in obtaining it. Carrying a heavy child in the arms—when this is done by young and growing girls, and such nursemaids most frequently are—is not only a wearisome occupation, but often one which, through inducing diseases of the spine, is the cause of serious injuries, the effects of which may last through life. Great however, as are the advantages derived from the perambulator, it must be admitted that in its usual forms it possesses certain evils, and is liable to abuse. In the hands of a careless nurse, the child may be exposed prejudicially to the effects of heat or cold, to an extent which would be impossible were it carried in the arms. But this is a danger which may be obviated by careful supervision on the part of the mother. The chief evils which actually arise from the use of improperly constructed perambulators are, a tendency to sickness and vertigo, when the back and sides are so made that the head of the child can hang over the side; and spinal injury, resulting in nervous affections during after-life, when, owing to insufficient springs, the infant is exposed to such jolting or other rough motion as its tender frame is incapable of sustaining.

In a well-made perambulator, the body is, on account of its lightness and toughness, made entirely of birch-wood. The splash-board and wings, which are essential as preventing injury to the child's clothing in muddy weather, are best formed of solid leather; American cloth, which is a cheap imitation of that material, looks and wears well for a time, and is far less expensive, but is, of course, inferior in point of durability. The frame, wheels, and handles, are of malleable iron, and the springs of good steel, while that part of the handle which is intended to be grasped may be made either of fancy wood or of what is now more fashionable, opal glass. The inside is stuffed and cushioned in the same manner as any other carriage, and the hoods, which are absolutely necessary to the comfort of the occupant, are of two kinds. In one they are made like that of the ordinary barouche; metal ribs—with a covering of leather, coburg, alpaca, or holland—cross the perambulator, and are so constructed as to admit of their folding backwards, and fastened by screws at the sides in such a manner as to allow of the whole hood being removed at pleasure. Upon this the second description—the patent canopy—is an improvement, being less weighty and cumbersome, and more elegant in appearance. A curved rod of iron, fitting into a socket at the back of the perambulator, supports a species of parasol, which when opened completely protects the occupant, and when closed can be covered with a case, and thus secured from dust. The principle of this sunshade differs from that of the ordinary parasol or umbrella, in its opening laterally instead of vertically.

A special point to which attention should be paid in purchasing a perambulator is the form of the back. A square back will permit the head of the child—when from any cause, such as sleepiness, it falls from the centre of the seat—to hang over the side; and a round-backed

vehicle should therefore be chosen, as in this, when the occupant becomes weary, it will necessarily lean straight backwards. As regards the possibility of upsetting, there is little difference in the various forms.

For convenience of transmission by ship, or by rail into distant parts of the country, some perambulators are so made as to have the handles and other projecting parts removable at pleasure, and to admit of their being folded up. This is often a great convenience, and vehicles of this description may be procured from any of the leading makers in London, and some manufacture a specialty of this make of the vehicle. The folding-up perambulator possesses the additional advantage of occupying but little space when not in use.

It may be well for the information of such of our readers as are about to purchase perambulators, to state that the prices of good London makers vary from about thirty shillings to nine guineas, the lowest price being that of a "single" perambulator, the highest that of one intended to carry two children, and combining all the advantages of construction which we have mentioned, together with the best materials.

Hints to those about to Purchase.—Although in the observations which we have already made we have pointed out some of the more essential features in the construction of the perambulator, there are some others of minor importance, which are well worth attending to, as they conduce to the appearance and durability of the carriage, and, what is still more important, to the safety and comfort of its inmate. For instance, when a perambulator for two children is bought, it will be well to see that it has a division in the centre to secure to each child its proper proportion of room. If the carriage have a hood, one with joints is to be chosen in preference, since the incomplete arrangement of a strap in front to keep the hood extended is liable, being constantly looked at by the child, to render it cross-eyed. Another desirable point in a hooded perambulator is a glass light in the back, through which the child may be constantly watched by its nurse; without this she can only see that it retains its proper position—and that it is right in every other respect—by leaving the handle and coming to the front, which she will not be likely to do too often. When the additional expense is not an object, real morocco makes by far the most handsome and enduring lining, and should be chosen. There should be a good and brilliant surface to the painted portions, as this will indicate the proper thickness and consequent durability of the paint, five coats being considered necessary to give such a surface; and we may in this place remark that the paint, and even the body of the carriage itself, may be made much more enduring by being simply varnished once a year. It should be seen that there is an apron and a proper strap to fasten the child securely in its seat; and care should always be taken that the vehicle is sufficiently roomy for the proper accommodation of its inmate.

PLAISTERS FOR DOMESTIC USE.

II.

GOUT AND RHEUMATISM.—*Anti-rheumatic* (M. Berg's). Dissolve 1 part of pulverised cantharides, and 2 parts of powdered euphorbium, in 10 parts of rectified spirit, for eight days. Strain and add to the liquor 4 parts each of Venetian and black resin turpentine during warming.

* **TO RAISE BLISTERS.**—*Cantharides*. Dissolve together over a slow fire, 3 oz. of resin, 6 oz. of lard, and 7½ oz. each of suet and yellow wax. Then gently add, during cooling (but not when setting), 1 lb. of pulverised cantharides. Take 4 oz. each of yellow wax, prepared lard, and resin, and 6 oz. of Spanish flies. Mix as before. Spread

* Plaisters marked thus should only be used by the experienced.

the plaisters on leather, leaving a margin, around which place an adhesive matter. A thin substance should be placed between the skin and the plaister. Freely use diluents.

HEADACHE, COLDS, &c.—*Cephalic*. Dissolve 1 oz. of frankincense with 3 oz. of laudanum, and when cooling insert expressed oil of mace and pulverised cinnamon, of each ½ oz., and 1 dr. of oil of mint. For the first complaint apply to the temples, and in the latter to the stomach.

CORNS.—Take five parts of resin plaister, dissolve the same, into which sprinkle one part of pulverised sal ammoniac, and spread it on soft leather.

* For another, spread on felt the following: 5 oz. of Venice turps, 1 lb. of beeswax, and 1½ oz. of pulverised verdigris. Gently heat and stir. Cut the felt into small pieces.

Also, dissolve slowly ½ oz. each of sal ammoniac and saffron, 2 oz. of galbanum plaister, and the same quantity of pulverised camphor; during cooling add 2 oz. of liquid ammonia. Carefully avoid touching any other part than the corn. Spread on leather.

CUTS AND ALL KINDS OF ABRASIONS OF THE SKIN.

—*Court*. Stretch on a frame a square of silk, on the surface of which apply the following, warm, with a camel-hair brush, allowing each coating to well dry before adding another. Dissolve, in ten parts of water, one part of isinglass. Strain, and then mix two parts of tincture of benzoin. Finish off the surface with a coating of balsam of Peru.

Deschamps.—This can be produced as follows: Spread either silk or linen on a flat surface, and wash over with thin paste free from grit. Then dissolve gelatine in water, and coat till finish, taking care that each one dries.

Liston's.—Place on a flat surface a square of oiled silk, and apply the following with a camel-hair brush, as in the preceding. Soften 1 oz. of isinglass by applying 2½ oz. of water, add 3½ oz. proof spirit. Place the vessel in hot water, and well mix.

Dr. Paris's.—Stretch the silk as before, and coat it with the following until well covered. Dissolve in one vessel ½ oz. of gum benzoin in 6 oz. of rectified spirit. In a second vessel dissolve 1 oz. of isinglass in a very small quantity of water. Strain the contents of each vessel, and mix. Use only the clean portion warm. Finish with a solution of 4 oz. of turps and 6 oz. of benzoin.

The colour of the silk or other material to be used in producing these plaisters, being a matter of fancy, is left entirely to the maker. To render the material waterproof, apply a thin coating of pale drying oil on the outer surface. A superior plaister in appearance can also be produced by spreading the solution on gold-beaters' skin, and applying the drying oil to the reverse side.

COLIC, DYSPEPSIA, FLATULENCE, AND TUMOURS (INDOLENT).—*Cumin*. Dissolve 3 oz. of beeswax with 3 lb. of Burgundy pitch, to which add 3 oz. each of pulverised bay-berries, cumin seed and caraways, 1½ oz. each of water and olive oil, and then evaporate. Its properties are discutient. Apply to the stomach; also to tumours (indolent).

ISSUES, &c.—*Elemi*. The properties of this plaister are discutient and stimulant, and it is produced as follows: Dissolve one part of gum elemi with three parts of wax plaister, by the application of mild heat.

TINCTURE FOR THE TOOTHACHE.—Dissolve twenty grains of tannin and ten grains of mastic in half an ounce of equal parts of spirits of wine and sulphuric ether. A piece of cotton-wool is to be moistened with this tincture, and then introduced into the cavity of the decayed tooth.

HOUSEHOLD DECORATIVE ART.—LVIII.

FLORAL ORNAMENTS FOR WINDOWS AND BACK YARDS.

IN our large towns the houses of the upper classes often have their windows and areas tastefully decorated with flowers and plants. The floral profusion which adorns the windows of a West End mansion is, however, purchased or hired at a large expense, and to obtain a similar result by the same means would be impossible for those whose incomes are small. But this is no reason why not only the windows, but also the back yards and confined localities about the homes of the lower, middle, and working classes, should be debarred from the inexpensive adornment of living and refreshing foliage, such as is to be produced by common climbing and creeping plants. In the more closely-built parts of our own large cities we see little of this cheap and beautiful kind

pleasant to the sight, but we are of opinion that there are cases in which even this could be done; and under all circumstances, the front of any person's house, as well as the yard behind it, if he has one, may to a very great extent be rendered ornamental by these means.

The illustration, Fig. 1, shows how, with a few simple appliances, a window may be at the same time sheltered from the sun and rendered pretty. A is a framework of a few laths nailed together, which by means of rings or staples at its two upper corners may be hung upon hooks, driven into the wall, during the summer, and removed before winter. Its projection should be from eighteen inches to two feet. Two or more brackets, B, B, are fastened on either side of the window sill, to receive flower-pots or boxes, and between these and the framework nails are driven into the wall, so that string can be tied upon them to form a kind of lozenge-shaped

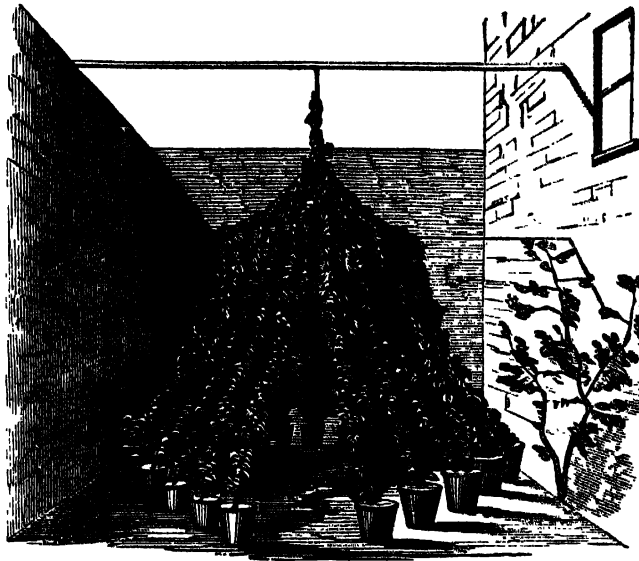


Fig. 3.

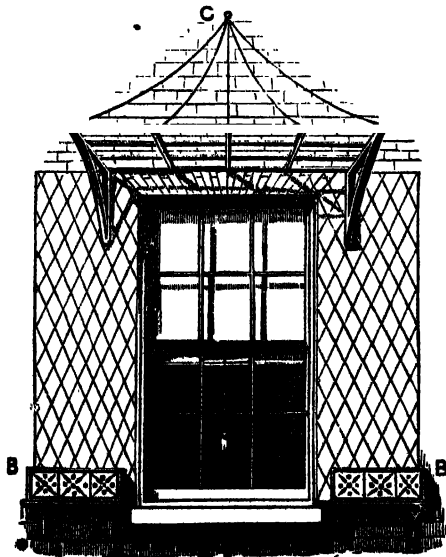


Fig. 1.

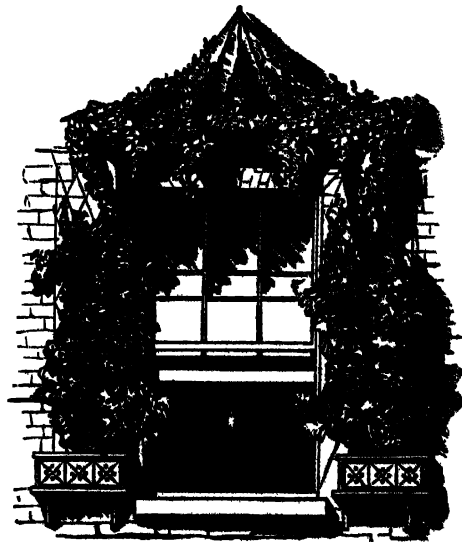


Fig. 2.

of gardening. Such, however, is not the case in the cities of most of our Continental neighbours. In many French and Italian, and in most of the Spanish towns, not only is it usual for the terraced roofs and balconies of the houses to be during the summer almost overgrown with creeping plants, but in the last-named country even the streets themselves are in many places festooned and overhung with this description of vegetation. There might, perhaps, be some difficulty in England in prevailing upon all the inhabitants of a narrow street, alley, or court, to combine in rendering their common premises more

trellis-work. The brackets, strings, and framework should all be painted green, and a further improvement can be made by carrying other strings, as at C, from the top of the framework to a hook driven into the wall above. In Fig. 2 we show this as it would appear when covered with evergreens. For cultivation in this instance some of the smaller climbing plants might be used, such as the canary creeper, the major convolvulus, the sweet pea, &c. The above arrangement can also be adapted to a doorway.

Where such decorations would not interfere with the

uses to which back yards have often to be applied, such places may be embellished by the cultivation of creepers in various ways. The idea of a small temporary arbour in the centre of the yard is taken from one which we have seen on the Continent. Such an arbour is a pleasing sight from the windows and agreeable to sit within. We have shown the pots of creeping plants placed at a little distance apart, but they may, of course, be brought much closer together, or there may be two rows of them, so as in fact to form a close wall of foliage. The construction is very simple. A piece of wood is placed across the yard from wall to wall, and from the centre of this a hoop is suspended by strings; from the hoop the strings radiate downwards and outwards to a circle of pots placed upon the ground and containing the creepers. It will be seen that the whole of the materials required would cost the merest trifle.

A small yard may also, if desired, be roofed in during the summer time by strings drawn across the top, and over-run with creepers; and covered walks and arbours of different forms may be made in the same manner, the materials costing but a few pence, and the chief outlay required being merely a little agreeable labour.

SAVINGS BANKS.—I.

THE very rapid increase in the number of savings banks within the last few years, is doubtless owing to the facilities which are afforded to them on all sides by an indulgent legislature for prosecuting and accomplishing the purposes for which they were originally intended. It is not our intention to perplex the reader with a statistical account of all the different savings banks in the United Kingdom, but we shall confine ourselves simply to a description of the various kinds of savings banks, their rules, and the parliamentary enactments by which they are governed.

There are, in effect, four kinds of savings banks, viz. :—

1. Ordinary, or common savings banks.
2. Post-office savings banks.
3. Military savings banks.
4. Savings banks for the navy and mercantile marine.

It is very remarkable that the new facilities offered by the Post-office savings banks have not lessened the sums deposited in the older savings banks. Parliamentary returns show that the sums owing to depositors in these banks continue to increase. As they have a superior claim to notice from their greater antiquity, we have placed them first in the category, and will proceed to describe them.

Any number of persons, or to speak more correctly, any body of persons, may form themselves into a society, for the purpose of constituting a savings bank; and if they have done all things necessary to entitle them to it, can claim the benefit of the statutory enactments in force concerning them. Not much is required of them; they must have the rules and regulations which they have drawn up and established for its management entered in a book, which must be kept by one of their officers for the inspection of depositors. Two copies of these rules must be submitted to a barrister, who is officially appointed for the purpose, in the same manner as barristers who are appointed to certify the rules of friendly societies. After this functionary has certified that they do not militate against the established law of the realm, one copy is to be returned to the trustees of the bank, and the other to be transmitted to the Commissioners for the Reduction of the National Debt.

We have said that any number of persons may form themselves into a society for the purpose of constituting a savings bank. This is true, but still the proposition will admit of some qualification, for unless the promoters of the scheme have obtained the sanction and approval of the

Commissioners for the Reduction of the National Debt for their undertaking, no amount of certification of their rules would ever entitle them to the benefits of the provisions of the Savings Banks Acts, and so they would not be allowed to use the title, "Savings Bank, certified under the Act of 1863," under which style all savings banks whose rules have passed the barrister must be certified. The Commissioners, however, seldom withhold their consent, and afford promoters every facility in their power for the successful organisation of their bank. But if any body of persons who have either not succeeded in obtaining the consent of the Commissioners, or have neglected to have their rules certified in the manner we have described, attempt to sail under false colours, and use the title above mentioned, the offence will be considered a misdemeanour, and the offenders punishable accordingly.

The code of rules of every savings bank, though applicable only to its own particular case, and not drawn up in accordance with any given form, must in all cases contain certain rules common to all, and without which the barrister would refuse to certify. They are eight in number, and are briefly as follows :

1. No treasurer, trustee, or manager of a savings bank, or any other person having any control in the management of it, shall derive any benefit from any deposit made in the bank. The expenses of the management, the salaries of officers employed in the management, such as the secretary and clerks, may, however, be deducted.

2. At every meeting for the transaction of public business, not less than two persons, being either trustees, managers, or paid officers appointed for that purpose, must be present so as to form a double check on every transaction with the depositors.

3. Every depositor's pass-book shall be compared with the ledger on every transaction of re-payment, and on its first production at the bank after the 20th of November in each year.

4. Every depositor shall at least once in every year cause his deposit book to be produced at the office of the bank, for the purpose of being examined.

5. No money must be received from or paid to depositors, except at the offices where the business of the savings bank is carried on, under the authority of the board of managers, and during the usual hours for public business.

6. A public accountant, or one or more auditors, must be appointed by the trustees or managers, but not out of their own body, to examine the books of the bank, and make a report thereon once every half-year.

7. A book containing an extracted list of every depositor's balance, omitting the name, but giving the distinctive number and separate account of each, and showing the aggregate number and amount of the whole, checked and certified by the accountant or auditors, must be open at any time during the hours of public business for the inspection of every depositor.

8. The trustees and managers, or committee of management, must hold meetings once at least every half-year, and keep a minute-book of their proceedings.

There is also a rule with respect to branch offices, which provides for the due receipt and accounting for all moneys of these branch offices on account of the head office. Weekly returns must also be made by the trustees and managers to the Commissioners for the Reduction of the National Debt, showing the amount of the week's transactions and the cash balance remaining in the hands of the treasurer on account of the bank.

All the moneys deposited in a savings bank are vested in the trustees for the time being, and all actions for or against the bank must be in their name; but they are not personally liable except in the following cases, viz. :—

1. For money actually received by them on account or for the use of a savings bank, for which they are trustees.

and not paid over and disposed of in the manner directed by the rules thereof.

2. For neglect or omission in complying with the rules and regulations required by law to be adopted with regard to the management of the bank.

3. And for neglect or omission in taking security from the treasurer, actuary, cashier, or other officer, who shall be entrusted with the receipt or custody of any sum of money received or deposited in connection with the bank.

The various deposits are paid by the trustees into the Banks of England or Ireland, and placed to the account of the Commissioners for the Reduction of the National Debt, who may direct them to be invested in the purchase of Bank Annuities, or any sort of parliamentary security. When these deposits are thus paid in, a receipt is made out and signed by one of the cashiers of the Banks of England or Ireland for the amount of the payment, which carries interest at the rate of £3 5s. per cent., and is payable with the principal at the Banks of England or Ireland, whenever it is required to do so.

The interest of the depositors' money, however, is calculated twice a year, and added to the principal standing in their names. It must not, however, exceed £3 os. 10d. per cent. In the case of infant depositors above the age of seven years, the trustees or managers are empowered to pay such a person his or her share in the interest of the savings bank, and their receipt is a sufficient discharge. So, too, with married women; for, unless her husband gives notice in writing to the trustees of his requiring the money due to his wife to be paid to him, the receipt of the woman will exonerate the trustees from further payment.

No sums must be paid into a savings bank without the name, profession, and residence of the depositor being disclosed to the trustees or managers, which are accordingly to be entered in the books of the bank; and at the time of the first deposit a declaration must be made and signed by the depositor, stating that he is not entitled to any benefit arising from the funds of any other savings bank.

The trustees must not, however, receive from any depositor more than £30 in any one year, exclusive of the compound interest which is to be paid thereon, nor any sum which shall make the amount to which a depositor shall be entitled exceed £150 in the whole, exclusive of interest, as in the first case. And when his or her deposits and interests amount to £200, the trustees are forbidden to pay him or her any more interest so long as the amount standing in his name continues at that figure. When, however, it is reduced, interest becomes again payable, and remains so till the above limit is again reached.

When a depositor dies leaving any sum exceeding £50 in the funds of a savings bank, the same cannot be paid to his or her representatives, except on probate of the will of the deceased, deposition, or letters of administration, of his or her estate and effects; and if the whole estate of a deceased depositor does not in the whole exceed £50, no stamp, probate, and legacy duty is chargeable.

If, however, a deceased depositor's interest in the funds of a savings bank do not exceed £50, exclusive of interest, and his will is not proved, or letters of administration taken out within a month, or if notice is not sent to the trustees of a re-intention to do so within two months after the death of the depositor, the money lying in his name on the books of the bank may be paid to the relative of the depositor having the greatest claim thereto. All cases of disputes connected with the management and working of savings banks, must be referred to a special arbitrator. This gentleman is a barrister, and is appointed to this office by the Commissioners for the Reduction of the National Debt.

The trustees of all savings banks must make up their accounts annually within nine days after the 20th of November in each year, and transmit the same to the Commissioners for the Reduction of the National Debt, and if they neglect to do so, the Commissioners may discontinue keeping any further account with a savings bank of such a disobedient disposition, and direct that no further sum shall be received at the Banks of England or Ireland, from its trustees, and the name of such bank is forthwith published in the *London Gazette*.

We have now laid before our readers all the information with respect to savings banks of class No. 1 that we think will be of any interest or service to them. In a succeeding article we purpose giving some account of Post-office Savings Banks and those constituted for sailors and soldiers, together with a short comparison of the two systems.

CHINA, PORCELAIN, AND GLASS.

IN our article on "Earthenware" (see page 145), we have described the process of manufacturing the commoner varieties of pottery, and that description will, in most respects, apply equally well to porcelain. In the first firing, however, it is usual to place porcelain articles in the kiln in deep boxes of baked fire-clay, called "seggars;" this is to afford them greater protection on account of their fragility. After about fifty hours in the kiln, the porcelain leaves it in the colourless state known as "bisquit," and has now to be glazed. To the true china, a glaze consisting of feldspar alone is used, but for the tender kinds the glaze is mostly composed of some soft earth with a metallic oxide, usually lead. After having been dipped in the glaze, the articles are again fired, in a kiln just sufficiently heated to vitrify that coating. They have now to be painted or gilded. For the former operation, all the colours used are metallic oxides, which it is necessary to mix with a flux, that is, some vehicle which will render them more fusible than the glaze itself. For this flux, different materials, such as ground glass, borax, and nitre are employed, and the colours are mixed with oil of lavender, which, as it quickly evaporates, leaves them dry. Gold is applied as a powder, and is burnished with an agate burnisher, after the third firing, which is required to vitrify the colours, and render them an integral part of the porcelain.

With porcelain may be classed the Parian or Carrara ware, which has, during recent years, become so exceedingly fashionable for statuettes, vases, and ornaments, and sometimes even for useful articles. From china, however, it differs in having a more fusible feldspar used in its manufacture than the ordinary Cornish stone. This is mixed with water, and in the state called "slip," which is somewhat of the consistency of pea-soup, is poured into moulds, in much the same way that liquid plaster of Paris is poured into moulds by the plaster-figure maker, and the mould is turned round till a sufficient and regular thickness of slip is deposited on every part of its interior. This is allowed to harden, and the mould is then removed. Frequently, the different parts of figures in Parian are cast separately, and afterwards cemented together, when hardened, with a little slip. The ware has, of course, subsequently to be fired.

Purchasing China.—For household use, china of as good a quality as that from the older and more famous manufactories, and at considerably less cost, and sufficient in point of taste, is to be bought from the Staffordshire potteries. In buying china, thinness and delicacy are always points which should be attended to, as well as graceful shapes in the outlines of the articles; and these features may be procured without much additional outlay. Simplicity in the actual form of the articles themselves, as well as in their handles, &c., is also desirable.

Unless expense be no object, it is not well to select highly-ornamented things, for in cheap sets, much ornament will generally be equivalent to bad ornament; and white, with a simple band of pattern, or a mere line of gold or colour, will be in better taste. In beginning housekeeping, an advantage is to be gained by purchasing the breakfast and the tea services of a similar pattern, for, as in course of time, the articles become diminished in number by breakages, it will be possible to make up one useful set from the two; and, moreover, there may be emergencies when more articles than one service can furnish will be required, and when it can be eked out from the other.

Management of China.—When first bought it is always well that the articles should be seasoned, otherwise they are liable to crack in hot water. The best method of seasoning is to wind each piece carefully in hay, though any other soft substance will do equally well, as this is merely to prevent their coming in violent contact with each other, and to place them with cold water in a copper. The copper should be *gradually* heated, till it nearly reaches the boiling point, and then suffered gradually to become cool. It is never desirable when washing china to use water which is very near to the boiling point, or, indeed, much more than tepid, unless rendered necessary by the presence of grease, in which case a little soap should be added. China articles should at once be wiped upon removal from the water, or they will look dim. Articles which have gilding upon them ought not to be allowed to remain soaking in water, or the gold will in most cases be injured, and often in the case of cheap china, removed in large pieces.

Mending.—The professional menders of china usually accomplish their work by drilling holes, with a splinter of diamond fixed on a point of hardened steel, and riveting the pieces together, but this is scarcely an operation which can be performed at home. Various cements may, however, be used. When the article will not subsequently be exposed to moisture, a simple cement may be employed of white of egg alone, or this may be made stronger by mixing it with finely-powdered quick-lime; still better cements are, shellac dissolved in spirits of wine, and isinglass dissolved in acetic acid.

Diamond cement, which is colourless and resists moisture, is made as follows:—Soak isinglass in water till it becomes soft, and then dissolve it in proof spirit. To this, a little gum galbanum, or ammoniac, and a little gum mastic, dissolved in as small a quantity of alcohol as possible, should be added, and the mixture may be put into a phial, and should be closed with a good, sound cork, and not with a glass stopper, as the latter would be liable to become fixed with the cement. When the contents are required for use, the phial may be placed in boiling water, and they will thus be rendered liquid; the cement should be applied to the broken edges with a feather, or, better, a camel-hair pencil. A little isinglass dissolved with gin, is essentially the same as the above, and may be used instead of it, when the better and more carefully-prepared cement is not to be procured. In all cases it is important that the fractured edges of broken china should not be chipped or rubbed, otherwise it will be impossible to mend them either strongly or neatly; and for this reason it is well that the mending should be done as soon after they are broken as possible.

Purchasing Glass.—Housekeepers of the present day are advantageously situated as compared with those of former times with regard to the purchase of glass; for almost all articles are now to be bought of good and graceful shapes, at reasonably low prices; and, although highly decorative glass is still a luxury for the rich, articles which are of tasteful forms and good material are those which it is most advisable for all to buy, even upon the mere ground of economy. It is those things

only, which are so far good in design as to indicate that proper care has been taken in their manufacture, which we can recommend our readers to buy; for cheap, common, and clumsy glass is not sufficiently enduring to be worth purchasing. The cheaper kinds of moulded glass are of such inferior material, that they constantly break from causes by which good glass would be unaffected. Immersion in hot water, even below the boiling point, or even placing the articles near the fire in cold weather, will crack and spoil inferior glass; and the annealing is so imperfectly performed, that articles are liable with the least violence to separate at the places where they have been welded together. Good glass upon the table contributes, perhaps more than anything else, by its sparkling quality, to the cheerfulness of the dinner or supper-room, but bad glass, by its dulness, has a totally opposite effect. Fortunately at the present day, when the intrinsic value of the material is so trifling, massive glass is no longer professed to be admired by anyone, and thick drinking-glasses will only be bought for the sake of cheapness. When, however, we consider the greater durability, for the reasons above stated, of the thinner and better glass, a saving of about three or four shillings a dozen scarcely seems worth consideration. Clumsy glasses are heavy to carry, disagreeable to the lips, and, apparently, they spoil the flavour of everything drunk from them, and to be offered such a glass is offensive to any person of refined taste. In trying wine-glasses, it should be remembered that wine always looks better and more sparkling in a glass which has a cut stem than in a glass with a plain round one only, as the cut facets reflect light into the wine. For hock or claret, green or ruby glasses look well, but the latter, as its colour is imparted by gold bullion, is very expensive, a dozen of good ruby glasses costing about 24s., whilst green would not be more than 12s., or white, 6s.

Management of Glass.—As a rule it is not well to use soda for washing table-glass, for unless at once rinsed off it roughens the surface and destroys its brilliancy. In some cases, however, where the articles are greasy, as in butter-coolers or cream-jugs, some agent of this kind must necessarily be used, but it should at once be well rinsed off with cold water, and the article wiped; a little soda or soap may be employed, but wood-ashes are less prejudicial, and give greater brilliancy. Generally, in washing glass, cold water alone is sufficient; it should be wiped with a *clean* linen cloth, and afterwards polished with a wash-leather. Decanters should be washed with cold water only, and if this is done frequently, cold water alone will be sufficient; a dirty decanter will spoil any wine which is put in it. If decanters should, however, become at all encrusted, they may be cleaned by washing with barleycorns or broken egg-shells, but the best, though not in appearance the most cleanly method of scouring them, is that of putting into them a little of the "flue," or other dust and rubbish swept up in bedrooms, which has the property of fetching off any sediment from the glass. A little of this with water and well shaking, will soon restore transparency, and the decanter must, of course, afterwards be well rinsed. Lamp-globes and chimneys ought to be washed with soap or soda once a week, when in constant use; and these must be most carefully dried, or they will inevitably crack when warmed by the flame of the lamp.

HINTS ON BOOT-CLEANING.—When cleaning boots, take care that they are as dry as possible, otherwise they will not readily polish. Be careful also to remove any laces that may be in the boots, to prevent them being injured by the blacking. It is necessary to avoid using any blacking which dries too rapidly, or which leaves a white coating on the surface of the leather. Be very careful to keep each brush to its own separate use.

• CLOCKS AND WATCHES.

III.

Striking Apparatus.—The apparatus for striking the hour adopted in the best English clocks consists of a train of wheels and pinions, put into motion by the spring contained in the barrel, *E* (see interior of eight-day clock, page 140 of this volume), which turns the fusee, *F*. The fusee carries round with it the main-wheel, *a*, which has eighty-four teeth; this drives the pinion, *p*, of eight leaves, which carries on its axle the pin-wheel, *f*, having sixty-four teeth. In the rim of this pin-wheel are eight pins, which lift the hammer, *s*, by acting on its tail when the train is in motion. The hammer being gradually lifted by each pin, is at last let go by it, and is made to strike the bell by the spring, *u*. The pin-wheel drives a pinion, *g*, which carries round the pallet-wheel, *g*, of fifty-six teeth. As the pin-wheel has sixty-four teeth, it turns the pallet-wheel pinion eight times for each revolution of its own, consequently this pinion makes one revolution for every stroke of the hammer, an arrangement of which the use will be presently shown. The pallet-wheel acts on a pinion, on which is the warning-wheel, *h*, of the forty-eight or fifty teeth, and this last turns the fly-pinion, *i*. The object of this part of the train is only to equalise the motion, which is principally effected by the constant resistance of the air against the surface of the plate (termed the fly), which is whirled very rapidly round by the highest pinion. If it were not for this addition, the pin-wheel would move onwards with a jerk, after each pin had escaped from the tail of the hammer. The striking-train acts only at the end and the beginning of the hour, being at rest during the remainder of the movement of the going-train. We shall now explain how its action in the intervals is restrained,

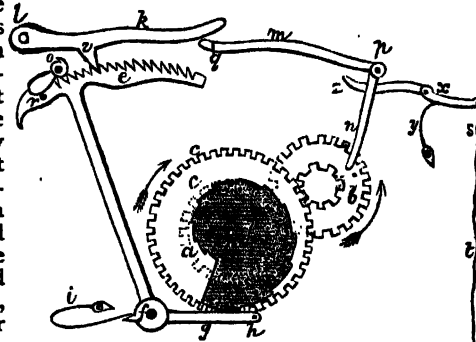
and at the proper time permitted and regulated. This is accomplished by means of the mechanism shown in the illustration. It is situated immediately behind the dial. The axis of the centre wheel, as already mentioned, is prolonged through the dial, to bear the minute-hand. In the striking clock this also bears a small wheel, *a*, which gives motion to another wheel, *b*, of the same size and number of teeth; hence this wheel, like the former, revolves once in an hour. On the centre of this wheel is a pinion of six or eight leaves, which turns a wheel, *c*, with a hollow axle, moving on the same centre as *a*, but at a different rate, as in the watch. This wheel has twelve times the number of teeth that the pinion contains, and therefore moves at only one-twelfth of the rate. To it the hour-hand is affixed; and it also carries a peculiarly-shaped piece of metal, *d*, which is called the *snail*. The edge of this snail is cut into twelve steps, each of which is a twelfth of the circle of which it forms a part; but the distance of each from the centre increases regularly from one to twelve. At *e* is seen a circular rack, fixed to the end of a bent lever, *e f g h*, whose centre of motion is at *f*. By the action of the bent spring, *i*, this rack will be made to fall towards the left, when permitted to do so; but the amount to which it shall fall is governed by the position of the snail, against the edge of which the pin, *k*, will be brought to bear. This spring is prevented from forcing the rack out of the position shown in the figure, by means of the projecting piece, *v*, on the lever, *k*, which turns on the centre, *l*, and drops by its own weight into the teeth of the rack. The form of these teeth is such that when the rack is moved from left to right, the catch

is lifted by them and allows them to pass; but so long as it is allowed to drop between the teeth, it completely prevents the motion of the rack from right to left. The lever, *k*, with its catch, may be lifted by the bent lever, *m p n*, whose centre of motion is at *p*; and this is acted on by a pin in the circumference of the wheel *b*, which is seen in the figure, close against the tail of the lever.

With regard to the gathering-pallet, the axle of the pallet-wheel, *g* (see interior of eight-day clock, p. 140), projects through the front plate, and is furnished with a projection, seen at *o*, resembling one leaf of a pinion. This works into the teeth of the rack in such a manner that, as the axle turns round, the rack is gathered up by it to the amount of one tooth for each revolution. When the machinery is in the position shown in the illustration on this page, which it is during the whole time that the striking-train is at rest, a projection on the gathering-pallet rests on a pin, which projects from the rack, as seen at *r*. It is this which keeps the striking-train from acting; for so long as this projection from the axle of the pallet-wheel bears upon the pin, so long must the pallet-wheel, and consequently the whole remainder of the striking-train, be prevented from running on.

When the time of striking has almost arrived, the tail of the lever *n p m*, is acted on by the pin on the wheel, *b*. The end, *q*, of this lever raises the lever *k l*, so that the catch is lifted out of the rack, which is thus set free. The rack is made to fall towards the left by the spring, *i*, pressing upon the projection below *f*, and the projection on the gathering-pallet is set free by the withdrawal of the pin on which it rested. The whole driving-train would therefore be set in action by its weight, if another check had not been provided, at the same time that the gathering-pallet is freed. When the lever

is raised, a projecting piece on the end, *q*, of the bent lever, *m p n*, stops a pin placed on the circumference of the warning-wheel, *h* (see interior of eight-day clock, p. 140). While, therefore, the lever remains in this position the striking-train is prevented from acting. The place of the snail determines the amount of motion given to the rack. The pin, *k*, in the position represented in the figure, would be stopped by the second step, so that the rack would only be permitted to move to the amount of two of its teeth. The pin would not be stopped so soon if the position of the hour-wheel were such that the twelfth step of the snail corresponded with the end, *h*, of the rack-lever, in which case the rack would fall towards the left to the amount of twelve teeth. This usually takes place about three or five minutes before the expiration of the hour, and is known as giving warning. In this position the machinery remains until the minute-hand points to XII., by which time the wheel, *b*, has so far advanced that its pin escapes from under the end of the lever, and thus allows it to fall. The end, *q*, therefore, no longer checks the pin on the warning-wheel. The weight or spring that moves the striking-train, now entirely set free, produces a rapid revolution of its wheels, and the successive strokes on the bell are caused by the pins on the pin-wheel acting on the tail of the hammer-lever. This movement is finally checked by the action of the gathering-pallet on the rack. The pallet-wheel, from the axle of which the gathering-pallet projects, turns round once for every stroke given to the hammer. In each turn it gathers up one tooth of the rack, and causes it to move towards the right, thereby regaining its original position. At each advance the



STRIKING APPARATUS OF A CLOCK.

projecting catch of the lever, *k l*, drops between the teeth, preventing the rack from being moved back by the spring, *i*. When the rack has been completely brought back to its first position, the projection on the gathering-pallet is again checked by the pin, *v*, and the striking-train brought to rest. From this it is evident that the number of strokes is determined by the number of revolutions the gathering-pallet is allowed to make, which is determined by the number of teeth on the rack which have to be gathered up by it. This number, again, is regulated by the extent to which the rack is permitted to fall, by the bearing of the pin, *h*, against the edge of the snail. A movement so constructed can scarcely be liable to commit any error. The striking-train, however, of the common German clocks, is very liable to give wrong indications, being regulated by an apparatus of simple construction.

A third train of wheels is required where a clock is made to strike the quarters as well as the hours, but the principle of the mechanism is the same as in that which regulates the striking of the hours. A snail cut into four steps is carried round by the axle of the minute-hand. There are four pins on a wheel corresponding to *h*, which, therefore, revolves in an hour, and one of these pins lifts the lever that sets free the rack every quarter of an hour. The passage of each tooth on the rack—which are four in number, to correspond with the four steps of the snail—permits one stroke on the quarter-bell. The quarter-stroke is generally made upon two bells, which is accomplished simply by having a set of pins on each side of the pin-wheel. One set of these acts on one lever, and the other set on the other lever. The second set acts a little after the first, so that the two strokes may not be made at the same moment. In cases where very great accuracy is required, it is necessary that clocks should be so constructed as to dispense altogether with the striking apparatus, since a certain degree of force is necessary to set it in action. As the power of the weight ought to be no more than is requisite to keep the pendulum in action, the force required in such cases would derange the very regular movement of a delicate and perfect clock.

When applied to watches, this apparatus has been of little use; for, being made on so small a scale, and carried about in the pocket, its action is extremely liable to become deranged. Repeating-watches of the ordinary kinds are made, not to strike the hours regularly, but merely to indicate them at the pleasure of the wearer. It is easy to apply a power sufficient to produce the strokes every time that the watch is applied to for this information. It is, therefore, not requisite that the watch should be furnished with a second barrel and fusee with a distinct striking-train of wheels. The object is usually accomplished by pushing in the pendant, or projecting portion to which the chain is attached. This compresses a spring, which sets in action the mechanism that produces the strokes. A snail, resembling that employed in clocks, regulates the number of strokes to be given. The construction, however, of repeating-watches is, at the best, very complicated.

COOKERY.—LXXXVII.

FRENCH DISHES, ETC. (continued from p. 279).

Gâteau de Lièvre.—Take away the bones from a roasted hare, and having separated the flesh from the sinews and tendinous portions, cut it up, and pound it into a paste in a mortar, together with a slice of cooked veal. Then boil some bread-crumbs in as much good broth as they are able to absorb, mix with the other materials, and beat them all together into a uniform mass. But care has to be taken that the weight of the bread-crumbs employed shall exceed that of the hare, and that the veal only weighs

one-third less than the hare and bread combined. Mix with them some pepper, salt, and spices, together with parsley, shalots, thyme, and basil, cut very small, and also some raw eggs, to make them into a mass. Then cover the inside of a tinned iron mould with slices of bacon; lay the forcemeat on them, and cover it with more slices, and cook them in an oven. When done, allow the cake to cool inside the mould before removing it. Then dip it for an instant in boiling water to loosen it, so that the mass may drop out when the mould is turned upside down, and take away the slices of bacon that surround it. Afterwards cover the forcemeat with small crumbs of the whitest bread. If you have not enough forcemeat to make a *gâteau*, roll it into cylinders in flour, and dip them for a moment in boiling water. Then cook them in butter, and having afterwards covered them with eggs beaten up, brown them in an oven.

Lapin en Galantine.—Entirely remove the bones from two rabbits; fasten by skewers some slices of bacon to one, while the other is chopped up with the same quantity of bacon, together with pepper, spice, but no salt, owing to the saltiness of the bacon. A few mushrooms may also be chopped up with them, if you have them. Cover the rabbits with a layer of forcemeat, mixed with strips of bacon, *langue de Vécarrate*, or some ham, with truffles, and tie them up in a white cloth. Then place some slices of bacon at the bottom of a stewpan; put the rabbits in it, together with the bones broken in pieces, some leg of veal cut small, some carrots, onions into which two cloves have been stuck, and parsley, chives, thyme, salt, and pepper. Pour over them some stock broth, mixed with wine, and cook them at a gentle heat. When the *galantine* is done, remove it from the pan, and allow it to cool in the cloth in which it was cooked. Then strain the liquor, clarify it with the white of an egg, and boil it down to the consistence of jelly. This is then poured into plates, allowed to set, and used to garnish the *galantine*.

Gâteau de Lapin (Rabbits cooked in the form of a Cake).—Rabbits may be cooked as *gâteau* in the manner directed for *gâteau de lièvre*.

Lapin au Blanc (Rabbit in White Sauce).—Cut a rabbit into small pieces, and wash it to remove the blood (which would colour the ragoût), and also take away the liver and the lungs. Put the pieces in a stewpan with butter, brown them, and then add a little flour, and afterwards some stock broth and a little white wine. Add also some parsley, chives, thyme, basil, mushrooms, and blanched artichokes, together with some bacon cut in thin slices, and season with salt and pepper. Place the pan over a quick fire to reduce the liquor, then add a few small onions, and thicken the sauce with some raw eggs.

Croquette de Lapin (Rabbit Fried with Bread-crumbs).—Prepare some *hachis de lapin*, and pour it into cups the size of small custard-cups. When cold roll the contents in bread-crumbs, and steep in raw eggs beaten up with salt and flour, and apply more crumbs to the surfaces. Then fry in *friture* not too hot, until browned, remove and let drain.

Hachis de Lapin (Rabbit chopped up).—Remove the bones from a roasted rabbit, and after taking away the tendons, and similar portions, chop it small. Then put in a stewpan a piece of butter, with the bones of the rabbit well bruised, some slices of veal cut in squares, some ham, or ham lard, cut up in the same manner, together with salt, pepper, and grated nutmeg. When sufficiently done, mix a spoonful of flour with the contents of the stewpan, and afterwards add some milk, and boil the whole for an hour, continually stirring the materials while on the fire. Then strain the liquid, and boil it down to the consistence of porridge, taking care to stir it constantly to prevent its adhering to the sides of the vessel. When sufficiently boiled, add to it the pieces of rabbit previously chopped up.

Marinade de Lapereau (Rabbit Pickled and Fried).—Cut the limbs and back of a young rabbit in pieces, and pickle them in the liquor directed for *lapereau frit*; then steep them in *pâte à frire*. After having drained them, cook them in *friture*, which should not be too hot, and send to table dry, with fried parsley.

Lapereau Frit (Young Rabbit Fried).—Cut a young rabbit in pieces, and steep it for an hour in white wine, lemon-juice, parsley, chives, thyme, and bay-leaves, chopped up small, together with salt and pepper. Drain the pieces, roll them in flour, and fry them. They should be served either with *sauce tomate* or *sauce piquante*.

Salad de Lapereau (Young Rabbit with Salad).—Cut the flesh of a roast rabbit in strips, and soak it in oil with a little vinegar, salt, and pepper, together with tarragon, pimpernel, and chervil. Put at the bottom of a dish the insides of some lettuces cut in quarters, arrange on them the pieces of rabbit, mixed with strips of anchovy, capers, beetroot, some hard-boiled eggs cut small, chervil, pimpernel, and tarragon in small pieces. Place over the articles mentioned a number of lettuces cut in quarters, and send the dish to table with a cruet-stand.

Faisan Rôti (Pheasant Roasted).—Allow the bird to hang for some days before roasting it, cover it with bacon, and roast it before a slow fire, taking care to baste it often.

Lapin aux Concombres (Rabbit with Cucumbers).—Remove the flesh from a roasted rabbit, and cut it into strips. Cut up into very thin slices two cucumbers, and lay them with salt in a dish until they yield the water they contain. Drain the water away, and pour over them some vinegar with salt, and let them remain for two hours, turning them occasionally. When the cucumbers have absorbed enough of the vinegar, dry them on a cloth, and place them in a stewpan with some butter, parsley, thyme, chives, basil, and bay-leaves, salt and pepper. Then put the pan on the fire, until the cucumbers are slightly browned. Mix them with a little flour, and pour over them some stock broth, or *essence de gibier*, and let them simmer for an hour and a half, and then add the pieces of rabbit.

Essence de Gibier (Essence of Game).—This, and other dishes of a similar kind, are prepared by boiling the bruised heads and carcasses of rabbits in stock broth, to one-third of the quantity of broth employed.

Gibelotte de Lapin (Rabbit Ragoût).—Prepare a *roux* (see p. 54) with flour and butter, and cook in it a rabbit cut in pieces, an eel divided into short lengths, and some slices of bacon. Put in also some sliced onions, and a few mushrooms. When the meat is done, pour over it one-third part of white wine and two-thirds of stock broth, and season with salt, pepper, parsley, chives, and thyme. Then remove the eels and the onions, and boil down the contents of the saucepan to one-third. Afterwards put back into the saucepan the onions and eels, and dish it up.

Faisan Rôti (Pheasant Roasted).—Cover the pheasant with pieces of bacon, and roast it before a slow fire, basting it frequently until cooked. Before pheasants are roasted they should be allowed to hang for some days, until they become sufficiently tender.

Faisan aux Truffes (Pheasant with Truffles).—Fill the inside of a pheasant with truffles chopped up small, and cooked with equal parts of minced bacon and butter, seasoned with salt and pepper, and then mixed with twenty or thirty roasted chestnuts. Cover the outside with minced veal and mutton, and surround it with slices of bacon. Tie them round with twine, and lay them in a stewpan of the proper size, the bottom of which is lined with slices of bacon. Add some Malaga wine, and place the stewpan to simmer over a slow fire. When the pheasant is cooked, take it out, remove the twine, and put it in a dish by the side of the fire. Then thicken the liquor in the stewpan with some truffles and some roasted chestnuts, and pour it round the pheasant.

Faisan en Salmis (Ragoût of Roasted Pheasant).—Roast a pheasant until two-thirds done, and divide the wings and legs in two pieces. Then remove all the flesh from the carcass, and cut it into strips. Put the bones into a stewpan with a glassful of white wine, some shalots chopped up, and a portion of the grated rind of a Seville orange. Pour over them a few spoonfuls of *jus*, or stock broth, season it with salt, pepper, and grated nutmeg. Boil the contents down to the consistence of sauce, and add to it before sending it to table some spoonfuls of olive oil, and the liver of the pheasant broken in pieces. *Faisan en salmis* should be served with pieces of bread fried crisp in butter. This dish may also be prepared by beating up the body of the pheasant with shalots, parsley, salt, pepper, and nutmeg. Fry it in butter, and then simmer it in white wine for three-quarters of an hour over a slow fire. Strain the liquor, and use for stewing the *ragoût*.

Perdrix aux Choux (Partridge with Cabbage).—Singe and truss two partridges, cover them with slices of bacon, and keep them in shape with string tied round them. Place them in a stewpan with slices of bacon, a polony sausage, and meat or game. Add also some carrots and a few onions in which cloves have been introduced, some bay-leaves, nutmeg, and pepper. Be very careful, if salt is added, not to put much, owing to the salt contained already in the bacon. Then blanch some cabbages, and having drained them, tie them round with twine, and put them in the stewpan with the partridges. Pour some stock broth over them, and let them stew over a slow fire. When the partridges are done, remove them from the vessel, and put them in a warm place by the fire. Also remove the cabbages as soon as they are done, strain the gravy in the pan, and boil it down to a proper consistence. Thicken it also, if required, with a few roasted chestnuts or a little flour. Then place the partridge in the middle of a dish, surround it with the cabbages, mixed with carrots, and slices of polony from which the skin has been removed, and pour the sauce over it.

Perdrix à la Purée.—Cook some partridges in the manner above directed, but without any cabbages or polony. When done, send the partridges to table with any *purée* that may be preferred, prepared with the gravy.

Salmis de Perdreaux (Roasted Partridges in Ragoût).—This dish is prepared in the manner directed for *salmis de faisán*, taking care that the roasted partridges are not completely cooked, and that the livers are crushed and mixed with the sauce.

Perdreaux Rôtis.—Singe and truss the partridges, and cover them with vine-leaves and slices of bacon. Roast them before a moderate fire, and serve them at table with a Seville orange or lemon, and without sauce. Sometimes partridges are surrounded with paper before being roasted, by which means their flesh presents a white appearance.

Perdreaux aux Truffes (Partridges with Truffles).—Prepare some partridges in the manner directed for *faisán aux truffes*, and fill them with the stuffing. Cover them with vine-leaves and slices of bacon, and roast them.

Bécasses en Salmis (Roasted Woodcocks Stewed).—This dish is prepared in the manner directed for *faisán en salmis*.

Bécasses Rôties (Woodcocks Roasted).—Cover the woodcocks, without opening them, with vine-leaves, and slices of bacon, and, having roasted them, send them to table in a dish surrounded with the gravy.

Bécasses Farcies (Woodcocks Stuffed).—Remove the insides from the woodcocks and fill them with stuffing made in the following manner:—Chop the portions removed with half their weight of bacon, together with parsley, shalots, salt and pepper, and afterwards run a skewer through them, which is to be fastened to the spit. When roasted, send the woodcocks to table with the gravy.

SCOTCH DISHES.

The Scotch are great people for national dishes. They have cakes, buns, short bread, porridge, scones, collops, crowdie, hotch-potch, and many other dishes, to say nothing of the excellent and wholesome Scotch or barley broth, which is in regular use; the singed sheep's head broth, the favourite Sunday dinner dish in so many well-to-do families; the fat brose, and, more than all, the haggis, so lovingly praised by the national poet:

"Fair fa' your honest, sonsie face,
Great chieftain o' the puddin' race!
Aboon them a' ye tak' your place,
Painch, tripe, or thairm;
Weel are ye worthy o' a grace
As lang's my airm."

The Scotch gude wife is usually a clever cook, economical and managing. She has been taught by her mother before her how to make the savoury messes which her husband and her sons love, and we may be sure that in their eyes the cleverest French cook that ever presided over a saucepan could not make delicacies which could compare with hers. Recipes are here given for a few of the best known of these Scotch dishes. They are such as are in use at the present day.

Haggis.—A haggis is made of a fat sheep's pluck, properly prepared, and boiled in a haggis-bag or a sheep's paunch, which has been perfectly cleansed, by first washing it, then soaking it in cold salt and water for several hours, turning it inside out, scalding it, scraping it quickly with a knife (being careful not to cut it), and leaving it in cold water till wanted. Sometimes the stomach of a calf or a lamb is used, but that of the sheep is generally preferred. The pluck itself, too, should be thoroughly cleansed. The heart and the liver should be gashed with a sharp knife in several places, to make the blood flow out, and then the liver and lights should be boiled; an hour and a half will be sufficient for them, though the lights can scarcely boil too much. The wind-pipe should be allowed to hang over the side of the pot to assist the escape of the blood. After ten minutes' gentle boiling, the water may be drained off and fresh water poured over the meat, and when the boiling has continued for an hour, the rest of the pluck may be added. When all is done, take up the meat, and trim away the skin and the black portions, grate half the liver, and mince all the rest finely. Mix with it one pound of finely-shred suet, two large mild onions chopped small, half a pint of finely-ground oatmeal, which has been toasted before a clear fire till it is brightly coloured, or, if preferred, an oatcake may be toasted and crumbled for the purpose. Spread the mince out on a pastry board, and sprinkle over it first the oatmeal and then a liberal seasoning of salt, black pepper, and cayenne. Moisten with half a pint of the stock in which the pluck was boiled and the juice of a lemon; put the whole into the paunch already prepared for it, first looking carefully over it to see that there are no thin places which may burst in the boiling (some cooks use two bags or a cloth as an outer covering). Do not fill the bag much more than half full, but leave room for swelling, for fear it should burst in boiling; press out the air, and sew the bag up securely. Plunge it into boiling water, prick it with a long needle every now and then during the first half hour to let the air out, and boil it gently for three hours. Serve it in the bag as it is, without either sauce or gravy. Some cooks substitute the sheep's tongue and kidneys for the lights.

A haggis boiled for two hours will keep for a week or two, and in this condition is frequently sent from Scotland to friends at a distance, for the haggis is a great traveller. When this is intended, it should be made very dry and covered with oatmeal. It would keep better if the onion

were left out of it altogether. A haggis is almost better the second day than it is the first. In heating it up, a little finely-shred onion, well peppered, should be fried gently, the meat laid on it, and the whole covered with the haggis bag to keep it from getting dry and hard. Even when they are in possession of the most exact recipe, English cooks seldom venture upon making a haggis. If they want one for their Scotch friends they can procure it from Edinburgh and Glasgow by ordering it; and it must be confessed that it requires an educated taste to enjoy the "mighty Caledonian pudding."

FOUNTAINS.

FOR DRAWING-ROOM, CONSERVATORY, OR PARLOUR WINDOWS.

DURING the heat of summer a fountain is something more than a pleasant appurtenance suggesting the idea of coolness, and an agreeable object to the eye; for, by causing constant evaporation, it acts as a refrigerator, and absolutely lowers the temperature of the surrounding atmosphere. It is, therefore, somewhat surprising that the fountain, as a means of adding to the beauty and comfort of the house, should be so little regarded in our large towns, and more especially in London, where a plentiful and available supply of water is always at hand, and where, owing to dust, the absence of vegetation, and other causes, the discomforts of hot weather are so much felt. That it is so is doubtless in some measure to be attributed to vague and exaggerated ideas of the cost of such a luxury, and upon this head we shall hope to give our readers some information in the course of our remarks.

There is another objection in the mind of the careful British housewife, namely, that a fountain in a dwelling-room would probably be injurious to her carpet and furniture; but that such should be the case by no means necessarily follows. The jet of a fountain constructed for in-door purposes can be made to throw its water within certain fixed limits, which may be as narrow as desired; and it must be remembered that in a room, where the jet is exposed to no strong winds, as it would be if placed in the open air, the spray will not be drifted to a distance.

All objections on this head may, however, be avoided if there is a window-garden, by placing the fountain within it; or, if the window should open into a small conservatory, the latter will be the best and most appropriate situation in which to fix it.

The in-door fountain forms a very pretty addition to an aquarium, and wherever there is a fresh-water aquarium of any reasonable size, no difficulty will be found in fitting it with the necessary pipes; holes may be drilled through either metal, slate, or glass for their insertion. Aquaria, and the methods of constructing them, have already been fully treated of in the first volume of this work, and to that series of articles we refer the reader. If the fountain is not to be in conjunction with an aquarium, a metal basin should be provided, and one of zinc is perhaps best for the purpose; though one of earthenware or terra-cotta would do equally well, and might be preferred by some persons as admitting of greater ornament. The smaller jets are so constructed as not to throw water beyond a diameter of eighteen inches, so that it will be seen that a basin a little larger than a good-sized washhand-basin may suffice; and, indeed, unless for a very large room, we should in no case recommend a basin of more than three feet in diameter. The basin made of zinc might, if plain, cost from 5s. to 12s., and its edges could then be concealed by plants and flowers, as recommended in making the temporary fountain (see page 39), or the metal or other material might itself be rendered ornamental. We

nave seen one covered with cement and encrusted with small shells, which had a pretty effect.

For the general principles of fountains, and for directions for their construction by the unprofessional workman, we refer the reader to our observations on garden fountains, in vol. ii., p. 97, where much information will be found equally applicable to those for in-door use. For the small quantity of water required no provision will generally be needed beyond a pipe to the cistern which supplies the house; half-inch, or rather smaller lead piping will be quite sufficient. In fixing it all sharp angles should be avoided, and curves used instead; for in an angle the water impinges against that part of the pipe

which is opposed to it, and loses its force, and consequently, plays less vigorously. For the same reason, the supply-pipe should be free from all irregularities upon its inner surface. For bending lead piping into curves, it should first be filled with dry sand, which will prevent its being contracted in the bend. Brass tubing, when hard soldered, should be filled with lead before being bent to any delicate curve, and the soft metal can be afterwards melted out. The stand-pipe, which rises in the centre of the basin and supports the jet, should be of brass; lead or any other soft metal being liable to bend when thus employed, and iron being liable to become stopped up by oxidation. It should be either soldered to the lead pipe below the basin or, what is better, should be attached to it by means of a pair of union screws, which will admit of its more ready removal for cleaning. The stand-pipe should have a stopcock near its top, and should terminate in a screw to receive the jet. The lead piping will cost, according to thickness, up to 6d. per foot, and the complete brass stand-pipe may be had at from 2s. 6d. upwards. In supplying an aquarium an iron pipe is especially to be avoided, as the oxide of iron is prejudicial to the health of the fish.

In order that all danger of the basin overflowing may be avoided, the waste-pipe should be one-third larger than the supply-pipe. This also will be better in brass, and it should be fastened with union screws to the lead pipe below in the same manner as the stand-pipe. The cost of the waste-pipe will be about 1s. The lead pipe passing from it must have a connection with the nearest drain, and should be properly trapped for the exclusion of foul air.

The stand-pipe will have upon its top a screw to receive the brass jet, or, more properly, the nozzle pierced with a hole or holes to allow the passage of water, and thus to cause the jet. Brass jets of many different designs may be had, all made to fit alike upon the same stand-pipe, and, for the sake of variety, it will be well to have two or more of them.

From the approximate prices which we have given for the various requisites, the reader will see that the expense of a small fountain need not be a heavy one. On one item of cost, however, we cannot give him much information, and that is as regards the piping to and from the fountain, for this must depend wholly upon the nearness of the cistern and drain, which will vary in every instance.

In all that has been said above it has been inferred that the house is regularly supplied with water from water-works, which will not invariably be the case where a fountain may be desired. Should it, however, be impossible in such instances to utilise the natural

fall, no great difficulty will be found in raising sufficient water for a small jet. In Fig. 1 we show an apparatus for which wind supplies the motive power, and which has in one instance within our knowledge been found not only to raise sufficient water for the fountain, but enough also for general garden purposes. At A are the sails of a horizontal windmill, constructed on the same principle as those of the wind-gauge, that is, with sails made of hollow half-spheres of thin metal attached to straight arms. Two only are, for the sake of clearness, shown in the cut, but four or more should be used in practice; these, if any wind whatever is blowing, will always move, and in the same direction, without adjustment, as resistance will be offered to the current of air by the concave but not by the convex sides of the hollow hemispheres. This may be mounted on the top of a building, or on a piece of

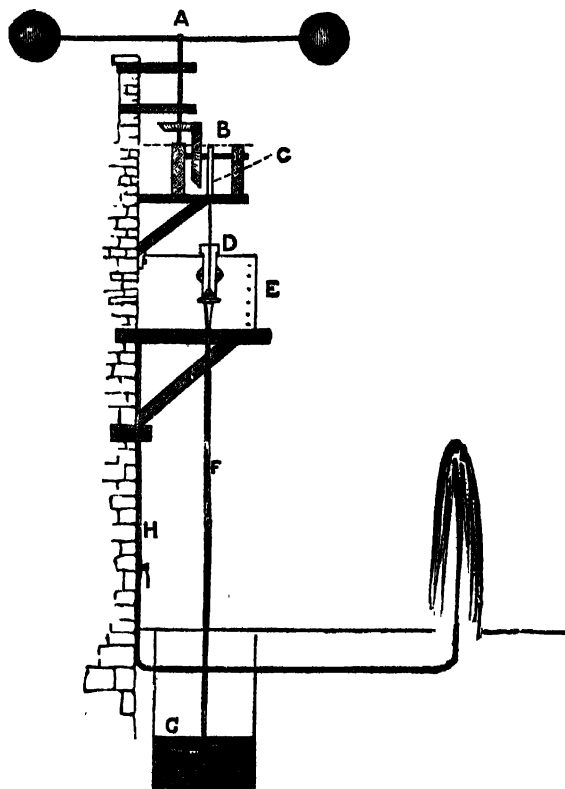


Fig.

timber specially erected for the purpose. At B are two bevel wheels, by which the perpendicular motion is changed to a horizontal one. By altering the relative sizes of these wheels, force may be increased at the expense of velocity, or the reverse, according as circumstances may require. The horizontal spindle turns an eccentric wheel, C, by which the necessary motion is given to a small suction pump, D, which throws the water into the cistern, E. F is the feeding-pipe in connection with the well, pond, &c. and H the supply-pipe of the fountain, communicating with the cistern. Such a pump would raise water to any height under 32 feet, and the whole apparatus need not cost more than about £5; indeed, an ingenious person could, if he purchased the pump itself, and some other of the detached parts, erect the whole himself at a cost of a few shillings.

In the diagram given the different parts of this apparatus are shown much more crowded together than they would be when actually erected; but it will probably be found sufficient to explain the general principles and arrangement of the machine.

HOUSEHOLD LINEN.

ONE of the chief advantages connected with living in roomy houses lies in the facility with which arrangements may be made for keeping each article required for household purposes in a separate place. People who enjoy this comfort are enabled to effect the very considerable, albeit indirect, economy which results from the careful storing of goods. Most housekeepers are sensible of the profit which attends buying certain articles of consumption in large quantities, and make such purchases accordingly, but comparatively few take into consideration an equally profitable outlay in the purchase and preservation of household linen. Yet both articles yield a corresponding profit, provided they be judiciously selected and economically used.

The first requisite is a closet, or press, in which to store linen. With a little management most houses, even the least considerably planned, may be made to afford the desired space. If it should happen that any choice in the matter exists, a linen-closet should be contrived against a wall in connection with a chimney where a fire is daily burning. Any apartment of which the wall is built against the flues of a kitchen fire is the best for the desired purpose. The gentle warmth which the bricks retain is the best means of preserving linen from mildew, so troublesome to prevent in damp situations. The worst place for a linen-closet is, for the same reason, against an outside wall, especially if the wall be exposed to a south-westerly aspect, or shaded by trees. In most modern villas there are some small rooms of a nondescript kind that may be advantageously employed as linen-closets. All that is usually needed is to partition off the desired space by means of doors, and to fit in shelves. The shelves should not be too deep, as things that are out of sight are apt to be forgotten, in which case one may be just as well without them. If the dimensions of the closet should be in excess of the quantity of linen to be stowed away, china and glass may be put aside in the same place. No articles, however, liable to decay should be put in the linen-closet. All clean linen not in use should be kept in the linen-closet, including blankets, counterpanes, and, if there be sufficient room, family body-linen not in wear. At the end of summer a good manager puts away her best white quilts, muslin curtains, thick blankets, and the light cotton and linen garments of her children. These she carefully puts aside on their respective shelves, and at the same time gives out more seasonable coverings and garments. Previously to putting aside such articles, necessary repairs should be made; or, if there be not time at the moment to undertake the work, a description of the intended alterations should be written on slips of paper attached to each parcel of goods.

No linen or muslin articles should be placed in the linen-closet, if they be likely to remain there any length of time, without the starch having been previously removed, and the things "rough dried." The airing of sheets and counterpanes especially should be thorough, and, if possible, they should be put away straight from the fire. It is owing to the imperfect manner in which such work is usually performed that mildew so constantly affects linen.

It is very difficult to remove mildew when it has taken firm hold of linen. The following compound is sometimes found successful:—Take equal parts of soft soap and powdered starch, and half the quantity of table-salt, add as much lemon-juice as will convert the ingredients into a thick paste, cover the spots with the mixture, and leave the linen exposed in the open air till the mildew is removed. As a preventive of mildew after damp weather, the linen-closet should be occasionally opened, and free air suffered to circulate in it through an open window.

The contents of the closet should also be aired before a good fire, or in the sun.

Next to mildew, moth is the most troublesome matter to deal with connected with the preservation of woollen stores. Numberless remedies are recommended for the prevention of moth in woollens and furs. Spices of all kinds—pepper, camphor, turpentine, and of late paraffine—have been amongst the most often-tried remedies. Each and all may occasionally have proved successful, inasmuch as moths particularly dislike strong odours of any kind, and rarely attack scented materials in preference to those which are devoid of smell. The only true preventative of moth, however, lies in the use of *alum*. The keeper of some large and valuable Government woollen and fur stores lately informed the writer that no means are equally efficacious in preventing the attack of moth as the application of finely-powdered alum to all articles which do not admit of being saturated, and by soaking those articles which do not suffer by immersion in a solution of alum and water. With regard to the treatment of furs, it is not sufficient to dust the powdered alum on the surface; it should be well worked in at the roots of the hair, the portion nearest the skin being the part which moths begin first to devour.

Coloured woollen materials require the same kind of treatment. There is one exception in favour of red cloth. It is not within the experience of the gentleman mentioned that moths destroy red-dyed woollens. This probably arises from the circumstance that alum is used in the process of dyeing red. All shades of grey, on the contrary, are particularly enticing to moths, and require especial care to preserve. White woollens and blankets may be safely left, even in exposed places, if, after having been washed, they are dipped in a solution of alum and water.

The time at which people generally examine their stores of woollens is not the most favourable for the purpose. Supposing, for instance, that such articles are put aside in the spring, they should be left untouched till October. By that time moths are no longer about, and there is no danger of any secreting themselves in the materials. By October, if any eggs have been deposited, the maggots will fall out on the materials being beaten. Airing blankets and furs in the summer sunshine is liable to be attended with greater damage than the act is intended to prevent, owing to the prevalence of moths in all places at that season.

It is almost unnecessary to mention that in a well-arranged linen-closet every article should be kept in its appointed place. When articles are put away from the wash, those of the past week's washing should be placed at the bottom of the pile to which they belong, and not laid on the top. By this means the same articles are kept in wear in turn, and thereby even a limited stock may be made to last longer without extensive renewal, than when only two or three things are in constant use. Articles that are reserved for use on special occasions should be kept apart from the rest. Inside the door of the linen-closet, or press, should be pasted a list of all the linen kept in the closet. If the family be large, and the beds numerous, the order in which the sheets should be changed should be noted in a separate list. It is hardly possible for the head of a family to bear all these details in mind without such assistance, and the comfort of her household depends largely on the amount of regularity that is observed in such matters.

In some families, where great regularity is observed, a certain number of articles of every kind in use is given out weekly, together with an additional number in excess of the average want, to meet any emergency that may arise. At the end of the week, both the soiled and the clean linen (if any remain unused) are returned to the housekeeper, and fresh given out. It is very necessary to

observe some such method when the demand is likely to be uncertain, especially if the establishment be large, with no one interested in assisting the head of the family in her labours. It is in the irregular use, whether of table or bed linen, that losses occur, not in the ordinary wear.

Periodically all household linen should be inspected with a view to alterations and repairs. Any article that is sent from the wash in need of mending, should be folded when sorted with the ragged or worn places *outside*. It is then seen at a glance what is fit for use or the reverse, and the annoyance of finding a hole in a sheet, or a rent in a table-cloth, at an inconvenient time, is obviated. When any articles belonging to a set begin to need repair, it is good management to provide a certain number of new ones. Well-mended linen is always creditable, and may last a long time for general purposes; but, as a certain stock must be kept up, it is as well to have a choice of new. Some ladies, who pride themselves on their good management of household linen, add every year a certain number of each article to their store. Thus, for an ordinary family, two table-cloths, four table-napkins, six towels, one or two pairs of sheets, six pillow-cases, six dusters, the same number of glass-cloths, and other things in proportion, are a regular addition to their stock. By so doing the expense of replacement is rendered comparatively easy, and plenty of sound linen can be relied upon at times of pressure. The additions thus made should be used in their turn, by being placed in the closet in the order alluded to above.

It is hardly possible to set too much value on the use of old linen for an infinity of purposes to which new would not be equally well suited. Still, pains should be taken to prevent linen falling into rags until the utmost wear has been exacted. This brings us to consider the all-important matter of making repairs. Beginning with sheets. Directly the middle of a sheet begins to feel at all thinner than the other parts, it is time to "turn" it. This is done by simply cutting the sheet in half and sewing together the outside selvages. The newly-made seam will then be the middle of the sheet. The sheet, if not much worn, will require no further alteration for a long time. If, however, the wear has been considerable, side pieces should be let in to the extent, and several inches beyond, the worn places. The sides must then be hemmed or sewn in the ordinary way. When, after a time, the "turned" sheet wears thin in the centre, instead of patching it, as some people are apt to do, it is better to sew the ends together, making the ends of the sheets now the middle. Or, if there be any children's beds to furnish with sheets, the sound ends and corners of a good-sized pair of sheets make capital cot sheets, and are more serviceable for nursery purposes than any other kinds. Old linen sheets are generally soft in wear, and admit of being washed more easily from stains than new. The same method of turning pillow-cases may be observed. The cases thus repaired answer very well for family use. To be profitable, they should be turned before the threads break into holes.

Damask linen of all kinds should be repaired by means of darning. In darning damask, what is termed "flourishing cotton" should be used in preference to the ordinary kinds. Good darning of thin places consists in skipping as many threads as are taken on the needle, and leaving good-sized loops (*i.e.*, about as long as the threads taken and skipped) at the end of each line. If the cotton be drawn closely to the material at the end of a line, a hole will gradually be made round the darn, and darning will thus assist rather than prevent destruction. If a hole has to be darned, the frayed sides should first be drawn gently in their places by lacing from one side to the other with fine cotton. The usual manner of darning may then be proceeded with. Great regularity in taking up one thread and skipping another constitutes good darning.

Darns thus made, even if large, are not discreditable, but show the painstaking industry of a good housewife.

When table linen requires constant darning, it is time to change its use from the table to the sideboard. For all general purposes, old tablecloths are good enough for the above use. The corners and ends make useful tray-cloths, and small, sound pieces may be picked out of almost all old table linen for dishing-cloths, that is, cloths folded in small squares to place beneath pastry and pie-dishes, or to wrap round a Stilton cheese or pudding-basin, and numberless other purposes where old damask may be used instead of new. When quite reduced to rags, old damask should be washed and mangled with the same care as new, and set aside in the linen-closet for use in the sick-room. If any sound selvages be left, pieces of from three to four inches broad should be cut off, and smoothly herring-boned together in lengths of from one to three yards, and afterwards rolled up neatly for surgical bandages. It may not be often that such accidents occur as to require similar appliances, but the head of a household should be prepared to meet demands of the kind, and by so doing her readiness may save life or limb.

Old chamber-towels should be darned in the manner described for table-linen; and when from wear their use for the original purpose is at an end, they should be set aside in the linen-closet for housemaids' cloths, namely, for wiping out toilette services. Nothing is better for this purpose. The remains of coarse huckaback toweling are excellent for use as plate-rags. Boiled in a solution previously recommended (vol. ii., page 122), such rags polish plate well.

Torn muslin curtains are not so generally convertible; at the same time, if old muslin be cleaned from starch, it is useful for poultices, and some should, therefore, be at hand in the linen-closet. Pieces of muslin, also, are often required by the cook for tying up herbs and spices, when making soup, gravies, &c., and as these are generally thrown away when removed from the stewpan, old muslin answers as well as new. In repairing muslin it is necessary to have all the starch previously washed out.

Quilts are generally darned when needing repair. Large old quilts may be advantageously cut up for small beds. Light marcella quilts are to be recommended in preference to other kinds. In converting old quilts, the hems should be herring-boned with coarse darning cotton.

All household linen should be marked with the name or joint initials of the owners. The date of the year in which linen was added to the stock should be marked above the name, and the number of the articles constituting the set underneath. If a set consist of six articles, the figure 6 should be inscribed in preference to running numbers. All articles making the set should be of the same size and pattern. Sets of linen reserved for certain uses, should be described accordingly. Thus glass and china cloths should be marked "housemaid," cook's cloths "kitchen," groom's "stable," and so forth.

HINTS ABOUT TOASTED BREAD.—To prepare buttered toast, hold it before a good clear fire that it may be done as quickly as possible, and butter it the instant it is toasted. If this is not attended to, the toast, instead of eating light and crisp, will be tough and leathery. To prepare dry toast, if it is required to be crisp and thin, it should be put in the toast-rack, and placed before the fire for some time before it is used. When thick toast, not too dry, is wanted, it should be done as quickly as possible, and served at once.

TO MAKE TOAST AND WATER.—Put into a deep jug some slices of bread which have been toasted on both sides a deep brown. Pour a quantity of spring water over them, and cover the jug. After the water has stood for some hours, strain it for use.

GARDENING.—LVI.

EVERGREEN GREENHOUSE PLANTS OF EASY CULTURE.

THE class of greenhouse plants we shall treat of in this article are those that possess a permanent character, as distinguished from those that require annual or frequent renewal by propagation, and we shall select a few of those of distinct or striking character only, as affording a diversity of foliage and flowers, and the cultural requirements of which are such that they may be maintained in good condition without demanding any extraordinary sacrifice of time and care on the part of the amateur gardener.

The *Camellia* is a plant that always holds first place in a general collection, not alone for its beauty, but for the general esteem in which its flowers are held by the fair sex for personal adornment—the white varieties being chiefly in demand for this purpose—the substance of the flower petals rendering them peculiarly adapted for withstanding the heated atmosphere common to ballrooms and public assemblies. Nice plants of the following varieties, in five or six inch pots, may be purchased at from 2s. to 3s. each:—*Alba pleno*, *Duchesse de Berri*, *Paolina Maggi*, and *Fimbriata*. These four are pure white, but distinct in form, the first and last being the most free to flower. *Imbricata*, *Wilderii*, and *Queen of Roses* are rose-coloured selfs; the first-named being the darkest. *Storeyii*, *Cup of Beauty*, *Valtevarredo*, *Chandlerii*, and *Caryophylloides* have both colours in irregular and varying stripes and blotches, and are all very beautiful. In the two first-named, white is the predominant colour. These plants require comparatively but little pot-room. Young plants may need shifting into larger pots, perhaps, annually, but after they get into eight or nine inch pots, once in two or three years will be often enough to shift them, but in no case should they be shifted into larger pots until they have well filled the present pots with roots, and then only into the next-sized pot. The best time for re-potting is during the month of June, the exact time being when the young seasonal growth is completed, and has become somewhat hard; if done before this stage is reached, the young shoots are apt to continue their growth to the consequent failure of the development of the bloom-buds. The soil they should have is a nice silky, fibrous loam, four parts, and one part old decayed cow-manure, with a liberal sprinkling of sharp sand. In re-potting, only so much of the old soil must be removed as will readily fall away by a light manipulation with the fingers, and the new soil should be used in a somewhat rough condition, without sifting, and pressed around the old ball of earth with considerable firmness. The pots used must be cleaned and well drained; they may have a moderate soaking of water on the completion of the operation, after which they will want very little for a month, but should be syringed over-



AZALEA.



CAMELLIA.

head daily then, and during all the summer season. Camellias, at all times, should have water administered to them with caution, maintaining the soil in a nice medium condition of moisture, as either extreme will cause the flower-buds to drop; and they should always occupy the coolest, and a comparatively shady, position, in the greenhouse.

Azalea Indica must rank next in importance as furnishing a most brilliant display of bloom—in the month of May—of an infinite variety of shades of red and purple, pure white, and combinations of these colours. The following are a few of the most distinct and useful:—*Iveryana*, white with rosy stripes; *Flag of Truce* (double); *Fielder's White*; and *The Bride*—pure whites. *Duc de Nassau*, *Empress Eugénie*, *Glory of Sunninghill*, *Leopold I.*, *Stanleyana*, and *Sir C. Napier* are of various shades of rosy purple. *Rubens*, *Perryana*, and *Gem* are shades of scarlet. *Julyana*, *Roi Leopold*, and *Marie Louise* are shades of crimson. These varieties may

all be purchased at 18s. per dozen.

They require for their successful cultivation, good fibrous peat soil, with a liberal admixture of sharp silver-sand; and the instructions for limited pot-room and firm potting given for camellias, apply with equal force to them, and the same stage of growth also indicates the time for the operation of potting; but they require a larger supply of water during the blooming and growing season, with comparatively little during

the winter, but they must never be allowed to get dust dry. They should be syringed freely during the summer, doing it in the morning, so that the plants get dry again before night. This is the best precautionary measure to ward off the attacks of thrip, an insect that is very partial to azaleas, and which is almost sure to attack them if kept in a too dry atmosphere.

Chorozeema angustifolia, *C. cordatum splendens*, and *C. Lawrenceana*, a very showy, free-flowering genus of plants, pea-shaped flowers, purple and orange-scarlet. *Correa brilliant*, *C. Cavendishii*, and *C. speciosa ventricosa*, the flowers the same shape and of similar colours to the chorozeema, but larger, the plants having a quite distinct appearance. *Eutazia latifolia*, also a pea-shaped flower of a deep orange colour, the young shoots of the previous season's growth being completely covered with the blossoms. *Eriostemon buxifolium*, and *E. neritifolium*, very pretty white star-shaped flowers, produced in great abundance. *Polygala cordata* and *P. Dalmaisiana*, purplish lilac pea-shaped flowers, very free bloomers. These may all be purchased at about 2s. 6d. each, and may be kept in good condition by observing the same rules as those given for the cultivation of the azalea, but they do not necessarily require such frequent syringing. As the seasonal growth of all these plants commences either while they are in bloom, or immediately after, any pruning

they may require to induce a more compact shape, should be done just as the growth is about to commence. The principal pruning they require will be simply shortening back any long or straggling shoots, and if these are cut back when the flowers are open there need be no bloom sacrificed, as it may be used for vases, &c. A little attention in the matter of tying occasionally will obviate the necessity for any severe pruning.

The general conditions necessary for maintaining these plants in health are free ventilation at all times when practicable, giving air both night and day in the summer; the avoidance of artificial heat, except when really necessary. The temperature at which they may be kept in the winter may range from 40° to 50° Fahrenheit in the day, and from 36° to 42° at night, letting the temperature decline to the minimum as the days decrease in length, and rising again as they lengthen out. Avoid sudden fluctuations as much as possible.

With sudden outbursts of sunshine, of course, the temperature will rise considerably, even with ample ventilation; but this will do no harm, as, with the accession of sun-heat, there is a corresponding increase of light. To those with whom gardening is a recreation of the leisure hours it is not always possible to keep strictly to these limits; but with a little practice in observations of the weather, and a judicious use of the fire and the ventilators, a tolerably good mean may be observed. During winter, at times when little or no fire-heat is being used, the greenhouse should be kept as dry as possible, taking care not to spill the water about when watering the plants. During frost, when it is necessary to keep the fire going continuously, a little water thrown on the floor of the house occasionally in the morning, with a little air given at the same time, will be beneficial. During the summer a slight shading is necessary during sunshine, and it is always the best practice to have it fixed on a roller, so that it may be readily applied or removed. If it must be permanently fixed for the season, the material must not be too dense—just sufficient to obstruct the sun's rays without depriving the plants of light. The best material for a permanent shading is scrim, or Hessian canvas; it is made two yards wide, at 9d. to 1s. per yard run.

The temperature of the greenhouse during summer will depend very much on the external temperature, and the ventilation must be regulated accordingly, giving a little air at night from the end of May to the end of August, and in more or less abundance both night and day in accordance with the weather. Water may be freely thrown about the floor and stages every day during hot weather. The watering of greenhouse plants should be done in the morning from the middle of September to the end of May; the remainder of the season it is best done in the afternoon or evening. During very hot weather some plants may require water twice a day, especially when pot-bound.

All the plants that we have mentioned are evergreen, and the following group of plants, also evergreen, may be grown under the same general conditions, if in the same collection, but if grown alone, or with other plants of similar constitution, do not need so much care or attention.

From May to October they will do better entirely out of doors, and in the winter they merely require to be kept free from actual frost.

The genus *Acacia* furnishes us with many varieties and species of decorative plants, some for their flowers, others only for their foliage; but the most distinct, and the most desirable for small collections, are—for flowers—*A. armata*, yellow; *A. coccinea*, rose; *A. longiflora*, pale yellow; *A. fulvibrissin*, rose; *A. grandis*, yellow. For foliage—*A. lophanta*, *A. dealbata*, *A. cultriformis*, *A. Drummondii*. These may be purchased at from 1s. 6d. to 2s. 6d. each.

Araucaria Bidwillii, *A. Brasiliana*, and *A. excelsa*, are singularly handsome and symmetrical coniferous plants, for foliage only. 5s. each.

Coronilla glauca, showy bright yellow flowers, freely produced; *Cytissus Atleeana*, and *C. racemosus*, also yellow flowers, but distinct; *Eugenia Ugni*, a myrtle-like plant, producing a quantity of bright red berries in spring, which are esteemed by some as dessert fruit; *Swainsonia Osburnii*, long racemes of showy lilac flowers; *Skimmia Japonica*, a dwarf-growing plant, with bright red berries. These may all be purchased at from 1s. 6d. to 2s. 6d. each. *Dacrydium cupressinum*, a handsome conifer of singularly light and elegant character, 3s. 6d. to 10s. 6d. each. All these plants are best grown in a good fibrous loam, with a little leaf-mould, in the proportion of five to one.

The greenhouse rhododendrons may be added to the latter group of plants, as requiring only protection from frost, and though last mentioned, are of first importance, as possessing extreme beauty, and some of them delightful fragrance. They are somewhat expensive, as none of the varieties are to be had under 3s. 6d. each, and some of them are much more. A few of the most desirable at the above price, are Princess Alice, *Javanicum*.

angustifolium, *Jasminiflorum*, *Dennisonii*, *Campylocarpum*, *Arboreum*, *Retusum*, *Thompsonii*, and *Fulgens*. These must be grown in peat soil, with a liberal addition of good silver-sand. Re-pot in September, and they want plenty of water while in bloom, and while making their young growth. No greenhouse or conservatory ought to be without a few specimens of these rhododendrons. They possess all the richness of colouring of the hardy varieties, with an added delicacy that is peculiar to them.



RHODODENDRON.

ODDS AND ENDS.

How to Decorate Steel.—Any bright steel surface may be ornamented with initials, a cypher, or a pattern, by the following process:—If the ornament is to be bright upon a dead ground, take a camel-hair pencil and draw with it upon the steel the letters or patterns in Brunswick black. If the ornament is, however, to be dead upon a bright ground, the letters or patterns must be left untouched, and the whole of the ground painted over with the pigment. A little aquafortis (diluted nitric acid) should then be poured upon the exposed parts of the steel, and in a few minutes it will be seen to have

eaten sufficiently into the metal. When this is done, wash off the aquafortis with water, and then remove the Brunswick black with turpentine. A pretty variety in steel decoration may be made by introducing blue ornaments. As all are aware, steel may be rendered of a beautiful blue by exposure to heat, and the blue colour can be removed, where it is not required in the pattern, with white wine vinegar, or other weak acid; the parts to remain blue being protected as before with Brunswick black. On the parts from which the blue is removed, further variety may be gained by painting additional ornaments in Brunswick black, and exposing the remainder of the ground to the action of aquafortis. If the parts which receive these latter ornaments are afterwards polished, the pattern will present three varieties, viz., bright blue, bright white, and dead white steel. Gilding on steel was formerly performed with a spirit; now, however, if the operator can conveniently send his work to an electro-gilder's, he will find it well to do so; first painting over those parts which are not to be gilt with Brunswick black. Or the gilding may be performed at home by the following method:—It is a known fact that if sulphuric ether and nitro-muriate of gold are mixed together, the ether will, by degrees, separate from the acid nearly the whole of the gold, and retain it for a long time in solution. Take ether thus charged, and with the camel-hair pencil paint over the parts of the design intended to be in gold, and, after giving the ether time to evaporate, rub over the parts thus gilt with a burnisher. After the completion of the design, the bright surface of the steel may be restored, in any place where it has become dim, by rubbing with a little whiting.

Characteristic Wall Decoration for a Hall.—When the walls of an entrance-hall are painted or papered with a plain grey colour, they may be decorated with rubbings of ancient monumental brasses. These may be taken either upon white paper with shoemakers' heel-ball, or upon black paper with a metallic rubber sold for the purpose. The process of taking a rubbing is easy. With a stiff brush first remove any dust from the brass; then fasten the paper upon it with wafers, and rub steadily till the flat parts are shown uniformly solid; rather thin paper is best. The rubbing should be cut out, pasted against the wall, and varnished. Such decorations are not only interesting in themselves, but form a good method of preserving fac-similes of the antiquities of any neighbourhood.

Necessity for Fresh Air.—The habitual respiration of air not pre-respired, is essential, absolutely, to the effective prevention of consumption, scrofula, and the other forms of tubercular disease. Air pre-breathed will not sustain combustion—will not sustain life. About forty grains of effete carbon are excreted every fifteen minutes, in the form of carbonic acid gas, from the lungs, provided always that air not pre-breathed shall be alone respired; if not, the effete carbon, being insufficiently oxidised, is retained *pro rata* as tubercle within the living organism, and leads sooner or later to its destruction.

Cement for Fastening Brass Letters on Glass.—Resin, fifteen parts; ochre, ten parts; iron filings, or blacksmith's ashes ground and sifted, three parts; powdered isinglass, two parts; mixed up with copal varnish, fifteen parts; and oil of turpentine, ten parts. Another cement for the same purpose consists of copal varnish, fifteen parts; boiled linseed oil, five parts; oil of turpentine, five parts; glue, previously dissolved in a very small quantity of water, five parts; and slaked lime, ten parts.

Poor Knights.—Cut two penny loaves into slices; soak them in milk, and lay them in a dish; then beat up three eggs with milk, sugar and nutmeg, and wet the slices of bread with some of the liquid. Fry them in a pan with butter, and pour the rest of the milk over them. When done send them to table with butter and sugar.

Milk Punch.—Slice four lemons, pour a pint of hot water over them, and let them macerate until cold. Then add a pint of brandy and a pint of new milk, with a quarter of a pound of loaf-sugar. Then strain the punch repeatedly until it becomes perfectly clear.

Scented Necklace for Perfuming Clothes in Drawers.—Put into a heated iron mortar an ounce of olibanum with the same quantity of gum benjamin and storax, and beat into a paste. Mix with them six grains of musk, with four of civet, and make into beads, which should be perforated while warm, and arranged on a string, like a necklace.

FRUIT DAINTIES.—VI.

APRICOTS (*continued from p. 271*).

Apricot Ratafia.—Boil the sliced apricots in white wine in a saucepan until they are reduced to a pulp, and empty the vessel into an earthen jar. Add some brandy, and also a quarter of a pound of sugar to each quart of liquid. Put in also the kernels of the fruit broken in pieces, with some mace, cloves, and cinnamon. Let these materials macerate in the ratafia for a fortnight, then strain the liquid, and preserve it in well-closed vessels.

Apricots Preserved in Jelly.—Take one pound of apricots and twice that quantity of powdered lump-sugar; put the sugar at the bottom of the preserving-pan, and on that the fruit. When the sugar is nearly dissolved in the juice from the apricots, put the pan over a good fire and let them boil. While this is being done it is necessary to turn the fruit frequently to prevent its burning, and the scum that rises to the surface should also be carefully removed. When the apricots have become tender put them in the glasses in which they are to be kept. Now put a quarter of a pint of apple-juice with the syrup in the pan; add to it its own weight of sugar, boil the whole together and pour it over the fruit in the glasses.

Apricot Preserve.—Peel and stone some moderately ripe apricots; put them at night in the preserving-pan between layers of crushed loaf-sugar. Next morning pour over them a little water, or some white wine, and simmer them, gradually increasing the heat until the sugar is completely dissolved; then take the pan off the fire and let it get cold. Afterwards place the pan again on the fire, and let it simmer until the fruit is tender and of a good colour.

Several Ways to Make Apricot Paste.—Peel some apricots, stone them, and put them into a dish in a warm oven, cover the fruit with another dish, and let them remain until they are tender; then take the apricots, let them get cold, and arrange them on a sheet of white paper. When this is done, take the same weight of powdered loaf-sugar as there was fruit employed, and moisten it with a small quantity of water; boil the sugar until ready to candy, and then mix the apricots with it; stir the syrup continually, and continue to boil it until it becomes of the consistence of marmalade. Make this paste into the shape of apricots and put them in a warm place. When dry they will be found very transparent.

Another Way to Prepare Apricot Paste.—Scald some ripe apricots and remove the skins and stones; then boil them in very strong syrup and pour the paste into glasses.

Apricot Paste Prepared by a Different Method.—Peel the apricots, cover them with boiling water to scald them; then drain them, beat them into a pulp, and strain them. Boil the pulp with half its weight of crushed loaf-sugar, until it becomes thick and clear. Then take the same quantity of sugar, boil it with a little water until ready to candy, and mix it with the pulp, but take care not to allow it to boil. Run this paste into pots, and place them in a warm oven until they candy; then take out the candied pulp and dry it on plates.

• ENGRAVING AS A BUSINESS.

IT is impossible in these pages to discuss all the employments which parents may consider available for their sons or daughters. But one or two of a semi-artistic character have lately been so strongly recommended that a brief description of them may be of real service; the more so as some of such employments are nearly as suitable to women, and are capable of being pursued in the home circle. At the same time, expectations based on these facts have been very largely exaggerated. No fragments of amateur labour will ever be worth much in the market, and all hopes of realising any tolerable income without hard and steady application are simply chimerical. Engraving on metal plates or wood may come first.

The plate of steel or copper is first prepared by burnishing, and is then covered with "an etching ground," consisting of a composition of wax, asphaltum, gum mastic, and resin. This is melted, and smeared, or rather dabbed, over the surface of the plate, which is kept warm over a clear flame or a bright charcoal fire, so that the "ground" can be laid in a thin sheet and with a smooth surface. When this is effected, the design, which has been drawn on paper with a blacklead pencil, is laid face downwards on the waxen "ground," and the whole passed under a rolling press, which transfers the design in faint lines to the surface of the composition. This design is then drawn or traced with etching needles, which of course scratch the composition from the surface of the plate wherever they pass, and wherever the lines of the intended picture are thus formed the plate is left exposed, only some of the very delicate lines being left that they may be formed by the graver after the etching is completed. Any mistake in the drawing or accidental scratches which remove a portion of the ground in the wrong place are stopped out with a camel-hair pencil dipped in a mixture of lamp-black and Venice turpentine. The plate and its coating, with the design thus scratched upon it, are then enclosed in a kind of a frame of wax about half an inch high, and formed into a spout at one corner, in order more easily to pour off the aquafortis (dilute nitric acid), which is now to be applied. This acid is poured on to the plate until the whole surface is completely covered where the design is traced on the ground, and wherever the metal is exposed—that is to say, wherever the lines forming the design have been drawn—begins to corrode and eat away the metal, all the rest of which is protected from the action of the acid by the coating of composition or the stopping mixture. When the faintest or finest parts of the design are corroded sufficiently deep, the acid is poured off, and these parts are "stopped out," or covered with the lamp-black and turpentine, so that they will not be affected by the next dose of acid. Then the process is repeated till the next finest parts are deep enough, when they are treated in the same way, and so on, till the broadest and firmest of the lines are eaten out. When this is effected the plate is warmed, the ground cleared off, and the surface with the etched design upon it cleaned and polished for engraving. The instruments for this finishing process are called *burins*, and are a kind of lozenge-shaped points for fine lines, and square-bevelled chisel-like tools for the broader and firmer ones. These points are fitted into small short handles, and the engraver, who has the plate on the bench before him on a sand-bag, so that he may move it with ease and certainty, holds the instrument by the handle at an angle which inclines it easily to the surface of the plate, and, pushing it forward in the direction of the line he wishes to follow, guides it with his forefinger. As the tool passes along the line the metal is cut and ploughed up in a ridge at each side, and this ridge or "burr" has afterwards to be scraped off. The surface is then smoothed by a roll of cloth dipped in oil, and polished from any accidental

scratches by a burnisher, which is also used to diminish the depth of any part of the work which has been too deeply etched. For those portions of the engraving which are put in by the graver only without previous corrosion of the metal, what are called "dry needles" are used, fine points suitable for the delicacy of line required.

Of course the earnings of the engraver greatly depend on his artistic skill and upon the accuracy of his manipulation. The mere preparer of the plates and the mechanical workman who does the rougher and less particular portions earn only the wages of a mechanic, while the artist who designs as well as executes, and on whose knowledge and judgment, as well as delicacy of touch, the completion of a fine work depends, is regarded as holding a high position in the world of art.

The whole business of steel and copperplate engraving for ordinary pictures has, however, been to a great extent superseded by an art which has been vastly improved and promoted within the last half century, and the modern profusion of illustrated books and journals depend for their pictures on the rapid and boldly-executed work produced by—

WOOD ENGRAVING.

The first attempts at printing were perhaps made by cutting letters in stone or other substances, so that when they were printed with ink the letter itself remained white and only the groundwork was black; but when wood came into use it was possible to reverse this, and to cut away the surrounding parts, leaving the design standing out "in relief." The first use of engraved wood blocks in Europe was for printing the designs on the playing cards which were made at Nürnberg, in Germany, at about the beginning of the fourteenth century, and an "old-fashioned" playing card of our own day will give a pretty good idea of the style and appearance of wood engraving at that early period. Of course, the application of the art to the production of other pictures soon followed; and probably some coarse examples of this style of illustration were executed, though none have been discovered with an earlier date than 1423. The first wood engravings were little more than rude outlines with a Chinese want of perspective; but at last "cross-hatching," or the art of putting in shades and filling in the figures, came to be practised; and first, Michael Wolgemuth, and afterwards his celebrated pupil, Albert Dürer, made wood engraving a fine art; and the latter brought it to wonderful perfection by unremitting labour and unmatched skill. By the beginning of the sixteenth century the art held a high place in the estimation of all the great painters; and Holbein, as well as others, designed pictures on the wood, while many added the work of the engraver to that of the artist.

The invention of printing books by means of separate letters on movable types gave immense advantage to these engravings on wood blocks, which could thus be placed at any part of a page, along with the "letterpress;" but soon after this application numbers of very common and inferior wood blocks came into use as cheap illustrations, and the best artists ceased to produce so many works of the kind, or to devote their attention to sustaining and improving the process. There was afterwards a reaction in favour of wood engraving; and, by the labours of several eminent men—amongst whom Thomas Bewick was one of the most conspicuous in this country—the art once more rose to great consideration at about the middle of the last century, and has now reached a height which makes illustrations engraved from wood blocks an important and necessary addition to current literature.

The "block" on which the engraving is made is of box-wood, which, from its hard smooth surface and fine texture, is best suited to retain the sharp lines that have to be cut upon it. In order to furnish these blocks, the

box-tree is cut across in slices, which are afterwards planed smooth and sawn into pieces of various sizes, and of about an inch in thickness, that is to say, of the depth which will enable them to be used along with the types for letter printing. Even the larger blocks are not generally more than eight inches square, so that when a large design has to be engraved, several of them have to be screwed together. This is accurately effected by means of brass bolts—the ends of which are screws which pass through the sides of the separate blocks—and nuts, which tighten them by turning in small cavities cut in the back of the block just where the end of the screw itself comes through. When the different pieces are screwed up, the surface of the whole block is smooth and even, and the design is drawn upon it by the artist with a blacklead pencil, the “lights” being sometimes indicated by a touch of flake or Chinese white. Then the parts are unscrewed again; and should the work be required in haste, each small square portion is handed to a different engraver, who completes it. They are then screwed together again, the whole is inspected, and is then ready for printing. The prices of these small blocks of which the larger ones are composed vary from eighteen-pence to half-a-crown, and the best are those which are sawn from fine dry wood, and have no knots or flaws; they should also be of a medium tint, and without any great variation of colour in the same piece.

Having obtained his wood block, the artist has to prepare it, or to have it prepared for him, by slightly roughening the surface, in order to ensure a firm and distinct line on the surface. When he begins to draw upon it the surface is frequently rubbed with a few grains of finely-powdered Bath-brick and a little liquid flake white, and afterwards dusted, in order to remove any grit. Even after this preparation, it requires some experience to draw on it firmly, and with bold distinct lines which the engraver will easily be able to follow. When it is remembered that every line has to stand out in relief after the wood on either side of it is cut away, it is not too much to say that the design should be a sharp, clear, and finished pencil-drawing, and that though many artists on wood indicate shadows by a wash of Indian ink, or lighter parts with French or flake white, such devices can only be safely employed when the engraver is himself an artist, and knows how to produce the intended effect. Indeed, the business of wood-engraving cannot be properly learnt except by an art student, who learns how to produce the due proportions of light and shadow, and can tell where they should fall in the picture, that it may not have a blurred and dim appearance; and even the earliest lesson to which the learner has to apply himself—the use of the tinting or shading tools, by means of which straight parallel lines are produced at various distances—requires some taste and experience in its proper application.

The next lesson is that of freedom and power in the use of the graver for forming bent or curved lines; and the third stage is the practice of “cross-hatching,” or cutting lines at various angles of intersection, so as to represent lighter or darker shadows. The bench of the engraver is rather high, and should be opposite a steady north light, which will enable him to see clearly what he is about; while, if some parts of the work be very delicate, he will require a magnifying-glass, like that used by watchmakers.

Having received the block with the drawing upon it, the workman covers with a piece of fine paper all that portion upon which he is not immediately engaged, and, as the work progresses, small strips of this paper are of course torn off, but only enough to leave but a small part of the drawing uncovered, lest it should be rubbed by the hand. To keep it firmly before him, and at the same time to enable him to move it easily, the block is placed

on a leather cushion stuffed with sand, called a “sand-bag.” Then the graver is taken in such a way that it may be guided with the thumb, and while the work of cutting is performed with the right hand, the block is moved by the left. It may well be believed that considerable practice and no small degree of skill is required before a perfect use of the graver is attained, for not only should the operation be swift and easy, but the line cut must be of uniform depth, and so firmly executed that the wood cut away falls in threads from the action of the graver. These gravers are, of course, of various degrees of fineness, and are angular blades fitted into small, round, wooden handles, one side of the handle being flat, to enable the workman to place it securely on the bench. For scooping out the wood in those parts where it is necessary to hollow it considerably, a bent instrument is used; while, for tinting, a thinner graver, and for cutting the edge of the block, a flat tool are necessary.

Even when the engraving is complete, however, it must be remembered that a fine artistic picture will not be obtained in any printed impression of it if all the lines come out with equal intensity on the printed sheet. This objection is sometimes got over by the printers, who, if they are skilful and experienced, can “bring up” the block; that is, they can place small pieces of paper above the sheet on which the engraving is printed, in such a way as to “bring up” the lines which should be dark and firm, while the fainter and finer portions will be less decidedly printed. This process, however, is rendered less necessary in the best engravings, where the operation called “lowering” is adopted, and the portions which are intended to be faint and delicate in the impression, are gently scraped, according to the degree of shade required.

The great increase in wood engraving, and the facilities which it offers for the purpose of rapidly and cheaply supplying illustrations for most of our popular literature, have had two results. Illustrated books and periodicals have vastly increased in number, and copperplate engravings and etchings on steel have been superseded, in favour of the more rapid and, in some respects, more effective process. Of course, success in the trade of an engraver depends so much on the skill of the workman that it is not easy to say what are the wages to be earned. A wood engraver in a good business in London employs several workmen, some of whom are mostly artists who are, on occasion, able to draw or design the picture, and to engrave it afterwards, and these, of course, can earn artist's wages, being paid at a remunerative rate for each piece of work. The best of the engravers are paid in the same way, and either have a shop of their own where they take home wood blocks to engrave, or occupy a place in a shop where they do the finer work, and finish the blocks after the journeymen or the apprentices have cut the first lines. An apprentice has usually to pay a premium; and when he is able to work with such skill as to be entrusted with any portion of a block, receives wages of a few shillings a week, which increase gradually to perhaps £1 10s. or £2, if he acquires the art of executing his work well, and can render the artist's meaning effectively. When he is out of his time, his success must depend altogether upon his ability not only to engrave well, but often to supply the effect indicated by the artist without having any lines on the drawing to guide him. Some of the best engravers (as we have already said) earn large incomes, while others remain mere mechanical workmen, and never rise above £2 10s. or £3 a week—it depends on taste or talent during the period of pupilage. Much also depends on a youth being placed in an establishment where works of first-rate artists are sent to be engraved, and where the principals are themselves practical men, ready to instruct their apprentices in details.

HOUSEHOLD AMUSEMENTS.—XLII.

PHOTOGRAPHY (concluded from p. 242).

Remarks on the Foregoing.—The evils to be guarded against in the developing, intensifying, &c., of collodion plates are chiefly:—1, Over or under-development; 2, Over-intensification; 3, Uneven development; 4, A want of sufficient acid in the developer; 5, Dust settling upon the plate; 6, White light falling upon the plate.

1. *Over-development.*—In this case the delicate half-tints in the lighted passages are destroyed, and you have in the print from such a negative flat patches of white, in lieu of delicate rounding-out, or modelling, by gradations of shadow. No part of the negative, after it is fixed, should be perfectly opaque, beyond those small specks of pure white which are found in the pupils of the eyes—should the subject be a portrait—and the minute touches of high lights on the flesh, jewellery, &c. Under-development results in a negative which prints flat black patches instead of surfaces in shadow, with all the gradations of tone given by reflected light, and surfaces having various degrees of prominence. Sometimes, when the subject has not been properly illuminated, one part of the negative will be over-developed when another part still requires development. The only remedy for this is either a skilful variation of the development, which none but those experienced can hope to manage, or the choice of more suitable conditions in lighting the model (see page 239 of this volume).

2. *Over-intensification.*—If in intensifying you render high lights too dense or opaque, those passages will be longer in printing than they would have been if the light could have more readily permeated them. The result of this defect is that all the details in the shadows are printed out before the other parts are sufficiently done, and the effect in the print is very like that which we have described above, namely, meaningless flat patches of black and white, in the place of those gradations of shadow and detail which give that life-like roundness and relief to the image which is characteristic of an artistic photograph.

3. *Uneven Development.*—If the developer in passing over the plate leave spots untouched, or if it fall too forcibly on one spot, or if it is kept more in one place than in another, stains, streaks, spots, and similar markings will appear, destructive to all artistic effect.

4. *A Want of Sufficient Acid in the Developer* often results in what is called "fog," which is a misty film destroying the transparency of the shadows, due to the too rapid action of a developer wanting in the restraining element—namely, the acid. A print from a foggy negative has a weak, flat effect, deficient in contrast.

5. *Dust falling upon the Plate* during the developing process causes specks and spots with tails, called, from the resemblance they bear to their prototypes, "comets." These may, however, be due to various other causes. (See remarks on coating the plate, page 241, and on the choice of a collodion, page 164.)

6. *Stray White Light falling upon the Plate* while it is being developed will produce the defect technically known as "fog."

If you find the subject starts out at once on the application of your developer, the exposure has been too long. It should appear slowly and by degrees. If it comes out very slowly and reluctantly, and before the details and gradations of shadow are got, the lighted passages of your subject are opaque: the exposure has been too short.

So much for collodion: now to turn to the gelatine process. It is, of course, presumed that the first plates used will be purchased ready prepared, though it is quite possible, not to say tolerably easy, for the amateur to make his own plates if he chooses.

Having retired to our dark room, and seen that the door is close shut, so that there is no light but that which

reaches us through the non-actinic window (which light, as before explained, has scarcely any action upon the sensitive plate), we proceed to undo the package of plates and place one of them, carefully dusted with a large camel's-hair brush, in the dark slide, so that the film side will be toward the lens. Now close the door of the slide and we are ready to "expose." It is practically impossible to give any information as to the time of exposure necessary, but we may suggest as an experiment (using a medium-sized stop in a well-lighted room, with commercial plates of average rapidity) six seconds. Having given the necessary exposure we cap the lens, push down the shutter, remove the dark slide and take it into the dark room to develop the plate. We may use either of two methods: the alkaline pyro or the ferrous oxalate. Each has its votaries, and much discussion has been held as to which of the two is the better, but opinions are pretty equally divided upon the question. A recent writer on the subject in the *British Journal of Photography* says that, after a series of carefully conducted experiments, he has arrived at the conclusion that where it is allowable to push the development sufficiently far to cause a slight veil in the shadows of the negative, pyro has a very decided advantage; but where absolute clearness of the shadows is necessary, both developers are pretty much on a par. Some plates are more suited to pyro than to ferrous oxalate, and *vice versa*. As a rule we should advise the beginner to use pyro to commence with, as it allows greater latitude in the exposure, and enables under-exposed pictures to be forced in the development much more readily than when using the iron salt, and this is a valuable property in the case of instantaneous work.

It is but fair to the makers of plates that the proportions of the various chemicals used in developing as given in the instructions should be rigidly adhered to, but as the amateur is likely to try several makes of plates, we should advise that the solutions should be made up as follows:—1. Take four ounces of sulphite of soda and dissolve in eight ounces of hot water, allow it to cool, and when quite cold make up the bulk with cold water made slightly acid with citric acid, to ten ounces. (Sulphite of soda is recommended by Mr. Herbert B. Berkeley for keeping the developer clear during development, and also for giving a better colour to the resultant negative.) Pour this solution into a one-ounce bottle of pyro, and shake well until dissolved. Each dram of this solution will now contain about six grains of pyro. 2. Dissolve one ounce of potassium bromide in eight ounces of water, and make up the bulk to ten ounces. Six grains of bromide will now be contained in one dram of solution. 3. Take strong liquid ammonia (Liq. Ammon. Fortis, 88°) and mix with water in the proportion of one ounce of ammonia to two of water. Three minims of this will now contain one minim of strong ammonia. Having your solutions mixed thus, it will be easy to calculate how much of each must be used to give any required proportion of the separate ingredients. And now to proceed. First rinse the plate under the tap, then lay it film side upwards in a developing tray, and pour over it two ounces of water containing fifteen minims of solutions Nos. 1 and 2. Then proceed to measure out (the quantities given are for a quarter plate) fifteen minims of No. 3. Put about one-third of this into a large developing cup, and pour the solution from the plate into it, return it to the plate, and keep the tray gently rocking. If the exposure has been correctly timed the image of the high lights should commence to appear in from forty to fifty seconds, but the time differs in different makes of plates. Allow the development to proceed until the picture is visible on looking through the back of the plate, and then add the remainder of the ammonia solution, and leave the plate until the high lights are sufficiently

dense. Considerable experience is required to judge correctly when the plate is ready for fixing, but this can only be acquired by practice. When the development is concluded to your satisfaction, *wash the plate thoroughly* in plenty of water, and immerse it in a saturated solution of common alum; it may remain in this for two or three minutes. After soaking in the alum bath, give the plate another washing, and fix in a 20 per cent. solution of hypo. Allow the plates to remain in the fixing bath ten minutes at least, and then wash for two or three hours in running water, or let them soak for twelve hours, film side downwards, in plenty of water, changed frequently.

Gelatine plates cannot be heated to expedite the drying, but must be set upon end and allowed to dry spontaneously. Should the iron developer be preferred it may be prepared and used as follows, which method is due to M. Audra, of Paris:—Take a saturated solution of neutral potassic oxalate; in another glass bottle a solution of protosulphate of iron in thirty per cent. of distilled water containing one per cent. of tartaric acid (this must be kept in daylight). When required for use, mix the solution in the proportion of three of oxalate to one of iron. If the picture is over-exposed, a few drops of ten per cent. solution of bromide of potassium may be used as a restrainer. It is as well to commence with half the iron solution first, and add the rest as required. Gelatine negatives should not be examined by white light until they are thoroughly fixed.

Gelatine negatives do not require to be nearly so dense as with collodion, and, if properly exposed, do not require intensifying, but should a plate be too thin to produce a satisfactory print it may sometimes be saved by treating it first with saturated solution of bi-chloride of mercury in water until the image is whitened throughout. Then wash carefully and immerse in a mixture consisting of water fifteen parts and ammonia one part, until the film is blackened right through. After this process it is necessary to wash the plates, film side downwards, for many hours, to render them permanent.

Varnishing the Negative.—Before your negative can be placed in the printing-frame, it must be varnished. In the first place see that the film is well drained and thoroughly dry. Before varnishing, gently warm the glass over a spirit-lamp, or before a clear fire, until it is just as hot as you can bear on the back of your hand, and then pour on it, in the way adopted for coating with collodion, sufficient hard negative varnish to cover the surface evenly, and dry by heating before the fire. Take care not to let it catch fire. When the varnish is cold and hard, the negative is ready for—

The Printing Process.—The apparatus prepared for this operation having been already described (see page 153), we need only add that the materials required will be—some sensitive paper, chloride of gold, carbonate of soda, and hyposulphite of soda.

We should advise the amateur to purchase ready-sensitised paper, which will keep for a considerable time if preserved between the leaves of a book made of paper saturated with bi-carbonate of soda, but we give the formula for sensitising should he prefer to perform that operation himself.

Sensitising the Paper.—First purchase from a respectable firm some salted albumenised paper. The "printing-bath" is a solution of nitrate of silver containing to every fluid ounce of water, say sixty grains of the nitrate. When the crystals are dissolved, fill one of your porcelain dishes, previously described (see page 154), to the height of about half an inch. The process of sensitising must be conducted in the dark room. Having cut the paper into quarter-sheets, take hold of one of the pieces by two opposite corners, and gently, without pausing, lower it until it floats on the surface of the solution, the glazed or albumenised side downward. One thing to be care-

fully avoided is the presence of air-bubbles, which would produce little white patches on the finished print. To ascertain that there are none of these, raise the paper with your pincers gradually, by one corner, first at one end and then at the other, diagonally. Should any bubbles be there, remove them by blowing, or by touching them with your glass stirring-rod, which you will do well to have always at hand. On this solution the paper should rest from three to four minutes. When that time has elapsed, the paper must be slowly raised and hung up to dry, in a dark closet or room, on a cord, by the aid of wooden clips—called "American clips." When dry, it is to be carefully flattened out, and placed in a book, which should be kept in a cool drawer.

Negatives for printing purposes may be divided into two classes, namely, thin and thick. From both kinds good prints may be obtained, only the thick negative requires to be printed from in a strong, direct light, while the thin one gives better results when printed from in a weaker or more diffused light. Again, for a thin negative the paper should be sensitised on a strong silver bath, while for a thick negative the paper should be prepared on a weaker bath. The theory is that a print on strongly sensitised paper loses more in the after processes of toning and fixing than a print on paper differently prepared does, and a print from a dense negative can well spare so much, whereas that from a thin one cannot.

To produce a print the printing-frame is laid glass side downward, the back is taken out, and the negative is laid in it, with the film side uppermost. A piece of the sensitised paper, cut to the required size, is then placed over this negative, with its albumenised surface in close contact with the negative. Over this put a few sheets of blotting-paper, and then carefully replace the hinged back of the printing-frame, fastening the bars, to which springs are attached to secure perfect contact between the surface of the paper and that of the negative, without which a blurred imperfect print would be obtained. The pressure or printing frame is then turned up, and exposed to the daylight. The length of the exposure depends altogether upon the quality of the negative, and can therefore only be decided by experiment. In summer a very short time suffices, but in winter sometimes an entire day is not sufficiently long for the production of a single print. To ascertain whether the print is printed enough, take the press into a dim light, undo one of the bars, and, lifting one side of the hinged back, examine it. If it looks right, replace it until it is just a little darker, and then remove it and place it in a folio or book ready for—

The Toning Process.—To make a toning-bath, procure fifteen grains of chloride of gold. This will be obtained in a glass tube, which must be broken and thrown, with the glass, into a clean bottle containing fifteen drachms of distilled water. Measure out one drachm of this solution, and add to it thirty grains of acetate of soda, dissolved in ten ounces of distilled water. This is the toning-bath, which must be kept at least twenty-four hours to render it fit for use. The quantity given should tone one sheet of paper. All solutions containing gold must be kept in the dark.

The flat porcelain dishes described on page 154 now come into use, and, in addition, it will be as well to procure one of the large glazed pans, called baking-pans, sold at all earthenware shops. Into one of the dishes or baths we pour the toning solution; into another smaller one, which must be used for no other purpose, the fixing solution, which is simply one ounce of hyposulphite of soda dissolved in six ounces of water; and the baking-dish we fill with clean common water. Into the latter immerse your prints one by one, removing air-bubbles, moving them freely about, and shaking the dish now

and then, in order to allow the water to get fairly at them. Keep them in this about ten minutes, changing the water twice or thrice. The first waters will present a milky appearance, and the last should be quite clear. If you are economically inclined, these washing waters should be preserved, as they contain silver, which may be precipitated as chloride of silver, by the addition of chloride of sodium (common salt), and recovered.

Each print is next put separately into the toning-bath, face downward, and without bubbles, as in the sensitising. When taken from the printing-frame, the colour of the prints is a rather unpleasant brownish red. This colour will change through various degrees of brown to purple in the toning-bath, and when the tone you like is reached, allow the print to remain a little longer to gain the depth it will lose in fixing, and then transfer it to a dish of water containing a little common salt. Remember that if kept too long in your toning solution the prints will be weak and flat, cold and grey. When all the toning is done give the prints a wash, and then put them into the fixing-bath in a batch, in which they should remain not less than a quarter of an hour. When all your prints are fixed, the contents of the fixing-bath may be kept, and, when a sufficient quantity has accumulated, sent to a refiner to have the silver extracted. After fixing, the prints require a thorough washing for several hours in clean water, frequently changed, and you must be careful to see that the water gets to each one separately, as on the completeness of this washing will depend the permanence of your photograph. When sufficiently washed, dry them between pieces of blotting-paper, and when dry they are ready for trimming. The best way to trim prints is to lay them down on a piece of millboard and put over them a piece of glass, called a cutting plate, the exact size you wish the finished picture to be, and then run a sharp-knife all round. When all are trimmed damp them slightly to make the paper expand, and affix them to the mounts with cold starch or thin hot glue.

The process by which negatives are taken and printed from has now been clearly and simply described, and we think none of our pupils ought to find much difficulty in carrying it out. It is easier to take positives on glass than it is to take them on paper, but then only one photograph is procured, at a cost in labour and material of very little less than will serve for a dozen of positives on paper, to say nothing of the negative being always ready for the production of any number of prints you may require. Should the reader, however, desire to take positives on glass, he has only to substitute positive for negative collodion, and give a shorter exposure in the camera.

Always practise on small plates first, and persevere.

GARDENING.—LVII.

BORDER EDGINGS.

ALL beds or borders not situated on, or surrounded by, grass lawns, should, for the attainment of a neat and orderly appearance, have some kind of permanent edging, either of a plant suitable for the purpose, or of some artificial material. Live or grown edgings are, in our opinion, always the best, as being more in keeping with the surroundings of nature, and when well and neatly kept will, as a rule, always please the eye of taste before any elaborate or ornamental artificial material.

When artificial edgings may be allowed to obtain a preference, it should be only in deference to peculiar positions, such as the immediate neighbourhood of large towns, where it is known by experience that live edgings do not thrive satisfactorily; as a measure of utility in kitchen gardens, as saving all after attention and labour, and as a matter of necessity in small gardens where children run about—as it is rarely the little feet can be

kept from treading on the live edgings, which will very soon be partly, if not wholly, destroyed; and unless a live edging can be neatly kept in a continuous and unbroken line, it had better give place to a less destructible material.

In large gardens the borders, and leading beds should be of a breadth proportionate to the size of the garden, when the best and most appropriate edging is a verge, or band of grass turf—but in no case should the verge be less than one foot in width, as a less width than this has a poor, ill-defined, and inconspicuous appearance; and whenever a border or bed exceeds four feet in breadth, the grass verge should be more than one foot in width; and a breadth of eight feet or more should not have a less width of verge than two feet, which will be found to be the most appropriate width for all purposes when the bed or border exceeds four feet in breadth, if the size of the garden will admit of it. A greater width of verge is only advisable in very large places, and when the features of the design of the garden are of proportionate sizes, and even then it should not exceed three feet; for when this width is exceeded it loses its character of an edging, and presents the appearance of a long, narrow lawn.

If a long, narrow lawn as a boundary to a very broad border is desirable, it should not be of uniform width. A much more pleasing effect will be obtained, if the edge next to the gravel walk is a straight line, by having the inner edge next the border in a curved line, or an irregular succession of curves, or the position of the lines may be reversed with equally good effect. The maintenance of grass edgings certainly involves the expenditure of more time and labour than any other edging. To keep them in good condition they ought to be mown once a week throughout the summer season, but when the mowing machine is at work on the lawn this is not a matter of any great consideration; the chief demand on time is in cutting the edges with the shears; but the superior appearance of this edging over all others is well worth all the time and labour that may be spent on it. During the winter the verges must be rolled occasionally to keep them firm, and annually about the middle or end of March both edges of the verge should be neatly cut with the edging iron.

The next best live edging is that formed of the box plant (*Buxus sempervirens*). For a narrow and dwarf edging, suitable for any and every position and purpose, there is nothing to equal the box, only that it will not thrive in too close proximity to large towns, and if used on heavy land, the ground must be well drained. It possesses a small, neat evergreen leaf similar to the tree-box, but differing from that in forming a close, compact, bush-like growth, which by annual clipping with the shears maintains a solid, dwarf condition for years, gaining but little either in height or breadth. There are two kinds of edging-box, one the English, a coarse-growing kind that is only suitable for forming a comparatively large edging, attaining in two or three years a height of six or seven inches, and an equal breadth, and rapidly increasing in size, the more so, as it will not bear such close clipping as the other kind—the Dutch—which is the only kind that should be used for flower beds, or for any purpose in small gardens. These plants are purchased at the nurseries at per yard of edging—the English at 8d. or 9d., one yard of which will, by division, plant about three yards; the Dutch at 1s. to 1s. 3d. per yard, which will plant five or six yards.

The planting, if left to a practical gardener, may be done, according to the nature of the soil and the simplicity or intricacy of the lines to be followed, at from 2d. to 4d. per yard; and as it is an operation that requires some practice to be able to accomplish it successfully, it is advisable to sublet the work; but by those of our readers who may desire to attempt the planting themselves, the operation must be commenced by digging the

ground about the width of a foot on the line the edging is to occupy, one-third of the foot width being on the path side of the line, and the remaining two-thirds on the border side (if there is already a gravel path existent the gravel must first be removed some six or seven inches width), digging the ground a good spade's depth. It must then be trodden firmly, and then, with the fallen soil in the trench on the path side, be made up to the required height. The garden line must then be stretched (we are supposing the amateur to make his first attempt on a straight line) in the exact position of the intended edging as tightly as possible, care being taken that the line when stretched stands one inch above the required level. The surface of the soil must then be regulated with the rake, just touching the line, after which the soil must be firmly beaten with the back of the spade, on the line, until it is seen by the line to be true. The beating will carry the soil down about half an inch; the other half an inch allowed extra will go down with the settlement of the soil. The line should then be stretched again, letting it touch the surface. The face of the ground as prepared must now be cut down into the trench at the edge of the path, leaving a wall of earth sloping just a little downwards from the line; this cutting down must be done with a firm, quick, bold stroke of the spade, and a clean, bright spade should be used, so as to leave a clean, smooth face to the wall of earth. It is now ready for planting, which is done by dividing the plants according to the thickness of edging desired; if necessary, trim off any rough growth of the top; place your prepared plants along the outer edge of your trench, and then, kneeling on one knee in the trench, the right hand to the path, pick up your plants one or two at a time, place them against the face of the wall of earth, keep them in position with the back of the left hand, the top of the plants about an inch above the line, and as often as the left hand has as many plants as it can comfortably keep in position, draw some of the finest of the soil from the trench up over the roots of the plants, drawing up enough to keep the plants in position for the present. When the entire line is planted, place with the spade the remainder of the soil in the trench up to the plants, so as to form a sloping bank from the level of the line to the bottom of the trench, which must then be carefully trodden with one foot only at a time, as the entire weight of the body placed on it by using both feet would be very apt to displace the plants. The gravel may then be returned, trodden, levelled, and rolled. The line should not be removed until after the gravel is trodden. If the soil is dry at the time of planting it should have a good soaking of water. This operation is best performed from the middle of September to the end of October, although it may be done in March, but will then require rather frequent watering through the following summer if it should prove dry.

Box edgings planted on light sandy soil will grow and spread more rapidly than on heavy soil, and to preserve a small neat edging it may be necessary to take it up and replant it every four or five years, but the surplus plants will generally be found sufficient to pay for the transplantation. We have said that these box edgings require annual clipping with the shears; this operation should be performed from the middle of March to the middle of April, choosing mild and, if possible, showery weather for its performance. The most common form of clipping these edgings is to form a square or flat top, but we very much prefer the round top, forming the edging as nearly as possible so that a section would present a half-globe. This has a much prettier appearance, and the plants are green to the ground, which they seldom are when cut square.

The common green holly, yew, arbor vitae, and sweet-briar may be used to form large coarse edgings, and may

be planted in the same way, and at the same time, at about three or four inches apart, and may be clipped in the same manner, but it is rarely it will be found desirable to use any of these in preference to the neater box. These may be purchased—little plants a few inches high—from 8s. to 12s. per hundred.

For town gardens the best evergreen edging plant is the ivy, for it will thrive where nothing else will, provided it is frequently and abundantly syringed, so as to rid the surface of the leaves from impurities. The large-leaved Irish ivy is best for broad bands, and the small-leaved English ivy for narrower and neater bands of edging. The ground for these should be dug two spades deep, and as much in width, giving it a liberal dressing of well-rotted manure. Tread the ground and level it, when it may be planted with small plants (which should be procurable at about 6d. each) about three or four feet apart, and the shoots pegged down in a continuous line. All the leaves of these should be clipped off annually about the middle of April, and all shoots that have gone out of bounds either cut off or pegged down where wanted to fill up.

Other plants that may be used for edging are the London pride (*Saxifraga umbrosa*), thrift (*Statice Armeria*), wall cress (*Arabis Alpina*), and the golden feverfew (*Pycnethrum parthenium aureum*): all very pretty, both in leaf and flower, but from their soft succulent nature not so useful to form a good boundary line as box. These edgings may be very easily formed by simply digging the line of ground, levelling, and planting with a dibble in the autumn by division of the old plants. Every piece or tuft will grow. They should be planted in a single row about four inches apart. They will want taking up and replanting about every three years, and the three first-named plants may easily be kept in order by occasionally removing any pieces that grow out of bounds, and removing with the shears the dead blooms once a year. The golden feverfew should not be allowed to bloom at all, as a more compact growth will be obtained by removing the flower-buds as soon as they appear, and it may be clipped in form any time during the summer, but dull weather is best for the operation. If it is intended to be kept clipped it should be done frequently, as if too long an interval is allowed to elapse, the plants look rough after the clipping. A simple, and the cheapest way of obtaining a first stock of these plants is to purchase seed (a sixpenny packet of either will furnish a large number of plants), and sow it in July. As soon as large enough to handle, prick out the young plants on a piece of nice light soil, in a somewhat shady position, about six inches apart, keep them watered as often as the weather necessitates, and run the Dutch hoe lightly among them occasionally to keep down weeds and admit the air to the soil. In October they will be fine plants, ready for use. If a lot of old plants can be obtained cheap from any one having a surplus, it is a still simpler process, but it is rather an expensive affair to purchase plants at ordinary nursery prices, for it is the custom of nurserymen to grow all such herbaceous plants in pots, when they cannot sell them under about 6s. per dozen.

Another soft-leaved evergreen edging-plant is the common stone-crop (*Sedum acre*). The remarks on the cultivation of the previous four plants apply equally to this, but once planted it seldom needs replanting, and the only attention it requires is to pull off all superfluous growth.

TO PREVENT STOPPERS STICKING IN EMPTY BOTTLES.—When decanters are left untouched for a long time the stoppers are very apt to get fast, so that they cannot be removed without the risk of breaking the vessel. This may be easily avoided by merely wrapping each stopper in paper before putting it into the mouth of the decanter.

ELEMENTS OF NEEDLEWORK.—I.

"THE great object of all instruction"—says a recent writer—"is to strengthen the mind, and form the character. Even needlework, humble as the employment may appear, may be made conducive to this end. When it is intelligently taught, the mind is employed as well as the fingers; powers of calculation are drawn out, habits of neatness acquired, and the taste and judgment cultivated in a way which eminently fits women for the higher branches of service, and enables them to fill even those the most menial with credit to themselves, and comfort to their employers." But in spite of this modern opinion, as to the excellency of acquiring skill with the needle, we are far behind our grandmothers in our general proficiency in the art, and in this, at least, they excelled us greatly. A girl was expected to learn to sew as soon as she learned anything, and as long ago as the sixteenth century we have a record of a shirt made, at six years old, by Queen Elizabeth, for her brother, Edward VI., a garment pronounced to be beautifully made, and a marvellous piece of skill. The invention of the sewing-machine has, undoubtedly, made a great difference in our habits, and a knowledge of its management and working is considered by many people as an equivalent to skill in hand-sewing. Very little thought on the subject will show how great a mistake this is; for though the machine causes a great saving of time in long seams and close stitching, there must be knowledge sufficient to make up the materials; and the mending, altering, darning, and general repairing—the most essential part of the business in a large family—can only be done by clever hands. To the true woman the influence of the needle, at once soothing and giving an excuse for quiet thought, is well-nigh indispensable.

The elements of needlework, as taught at present, arranged in six standards—on the plan required by the School Boards in London and elsewhere—are set forth in a number of small books by various authors, and may be studied by those who are interested in the subject. The HOUSEHOLD GUIDE, however, treating mainly of home employments, takes a different view, and consequently must begin with the home-teaching of needlework, and the best method of making our small scholar an adept in the art. The first thing is, to provide a work-box properly fitted up with everything requisite; and as few young mothers give sufficient time and consideration to these small matters, we subjoin a list of the articles needful.

The little box, or basket, may be worth but a few pence, or cost as much as a pound, according to the amount in the purse of the purchaser. For a child, a small one is sufficient, only large enough to hold six reels of sewing-cotton, black and white—the sizes ranging from 24 to 40, being the most useful—a needle-book, containing a page for needles of each sized needle, not omitting darning and worsted needles. A pin-cushion, an emery-cushion, bodkins, thimble, a stiletto, a little yard-measure, and two pairs of scissors, one being of medium size, and one pair for button-holes. Red and blue marking-cotton should not be forgotten. These are all a child's requisites; of course, as she advances, tapes, linen, thread, buttons, and

several other things must be added to the stock, which will require a larger work-box.

Opinions vary much as to the age when a little girl may safely be instructed in sewing; and each mother will be guided in this matter by the nature of her own child, some little ones being sufficiently advanced to commence at three years of age.

The first stitch usually taught is Fig. 1, hemming. The hem should be turned down and tacked firmly. The best material for the young beginner to commence upon is coarse unbleached calico, in which the threads can be easily seen. She should be taught to turn down to a thread in this way; not that it is needful always to work by a thread, but, as in the case of the blue lines in a copy-book, to train the eye to accuracy. A large needle and rather coarse thread should be used. The coarse unbleached calico on which the young pupil commences may be a half-yard cut in strips the selvage-way, not torn, as it ravel so easily, and curls at the edges. After being hemmed, they may be used again upon which to teach seaming, as the two edges should be straight, to a thread, if originally cut and turned down so. Selvages are so seldom even, that they are not suitable for the learner to begin upon; and children get a habit of taking their

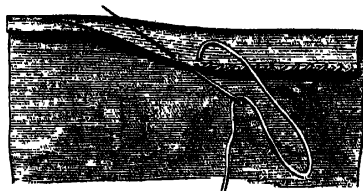


Fig. 1.

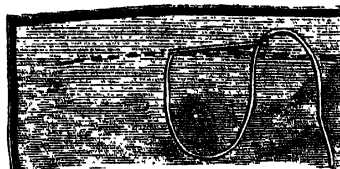


Fig. 2.

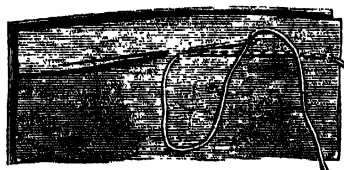


Fig. 3.

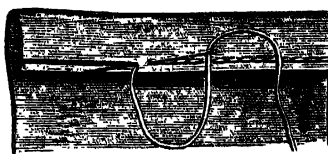


Fig. 4.

stitches too deeply, and so making a coarse thick ridge. The child must be taught that the seam is not finished unless it be flattened down, and laid smoothly open. An old tooth-brush handle forms an excellent "flattener," and the unpleasant sound of scratching with the finger-nail, or the thimble, is avoided. The right position in hemming and seaming must be carefully taught; in

the latter, "puckered" seams are a certain result of holding the right elbow close to the right side. The proper position, on the contrary, is to hold the elbow apart from the side, bringing the fore-arm into a horizontal position, so that the palm of the hand faces the chest of the worker, the needle pointing straight to the breast-bone. The stitch will thus be of the same size at both back and front of the strip. No. 8 needles, and No. 40 cotton, are the finest which should be used for work, and care should be taken to teach the young learner not to force the needle through by the aid of the thimble alone, but to help it through with the assistance of the thumb. Broken needles will, by proper management, be of rare occurrence. At this stage a little patchwork, made of scraps of coloured calico, will be found a great assistance and interest to the young learner. Running (Fig. 2) is the next stitch to be taught. The work is prepared by putting the two edges exactly together, if they be selvages, but if they be raw edges, and require to be felled afterwards, one raw edge must be turned down first, and the other laid upon it at a distance of a few threads from the top, and then tacked, to hold them together. The running should be made about six threads below the turned-down part, the rule being to take three threads and leave three, with an occasional back-stitch, to hold the work firm. The hem thus made is felled down just in the same way as hemming.

It is more necessary to have the work perfectly even in stitching than in any other kind of work. Before beginning, draw one thread to stitch upon, take two

threads back, and pass the needle so as to come out two threads in front. It is less trying to a child's sight to use coloured cotton on the white calico to stitch with; and as stitching needs a good deal of practice, several rows near each other may be done, and worked in differently-coloured threads for a change. Fig. 3 is the ordinary back-stitching; Fig. 4, the method of stitching and turning a hem, such as a handkerchief, or shirt.

It is not necessary now to devote so much time and attention to stitching as it formerly was, as here it is that the invention of the sewing-machine most materially assists us, and spares our eyes and our time. Sewing on tapes may now be taught. The making of a pillow-case could be performed with the stitches already learnt, as far as we have gone.

German—or counter-hemming as it is now called—has lately been introduced into the Board schools. It is a neat substitute for sewing, and lies very flat, so that it may be employed with advantage for the long seams of underclothing. It is all done on the wrong side.

Turn down the raw edges of both pieces of calico once, having them both one way, and turned towards you. Lay one below the other, so that the smooth top of the lower one does not touch the edge of the upper one, but is just below it. Then hem the lower one to the calico beneath it, just as if you were hemming upside down. When you have got to the end of your seam, open it, and lay the upper fold over the lower, and fell it down neatly, when the hem is completed.

COOKERY.—LXXXVIII.

FRENCH DISHES, ETC. (continued from p. 295).

Canards Sauvages (Wild Ducks).—These birds should be roasted without any bacon. They require to be continually basted with butter, lemon-juice, salt and pepper. Or, if preferred, they may be stuffed with these materials, together with half the rind of a lemon.

Canard Sauvage en Salmis (Roasted Wild Duck dressed as a Ragout).—Roast a wild duck until three parts done, then proceed as directed for *faisan en salmis*.

Cailles (Quails).—The best way of cooking these birds is to roast them. They should be covered while very fresh with vine-leaves and a slice of bacon, roasted before a moderate fire, and sent to table with the gravy.

Sarcelle (Teal).—This bird, although small, is more delicate than the wild duck. It is cooked in a similar manner.

Mauviettes (Larks).—These birds should be dressed in the manner directed for *faisan en salmis*.

Fricassée de Poulets (Stewed Chickens).—In selecting chickens for this and similar dishes, the preference should always be given to those that possess white flesh, with a delicate skin, and are plump and well made. To prepare *fricassée de poulets*, the chickens should be plucked and carefully singed. Then the insides should be removed, and the interior of the chickens carefully washed with hot water. Now cut the chickens in pieces, steep them in lukewarm water, and allow them to drain on a cullender. Afterwards melt a piece of butter in a stewpan, and add the chickens, and put it over a moderate fire until they are done. Then thicken the gravy with a little flour, and add some minced ham or bacon, mushrooms, parsley, chives, thyme, bay-leaves, salt, pepper, and a sufficient quantity of stock broth. Boil down the contents of the stewpan to three-fourths of its original quantity, and add some small onions. The *fricassée de poulets* should be thickened before sending it to table with the yolks of three eggs beaten up in cream.

Poulet au Choux-neurs (Chicken with Cauliflowers).—

Pluck and singe a chicken, and fill it with stuffing prepared in the following manner:—Mince the liver of the chicken with bacon, parsley, chives, and mushrooms, and season the minced materials with salt and pepper. The chicken is then to be cooked *en braise*, with some slices of veal and bacon, two carrots, an onion into which a clove has been stuck, parsley, chives, thyme, bay-leaves, salt and pepper. The cauliflower is then to be boiled in salt and water, and when half done taken out, drained, and simmered in the gravy from the chicken until sufficiently cooked. Then arrange the vegetable in a dish, place the chicken on it, and send to table.

Poulets au Céleri (Chickens with Celery).—This dish is prepared in the same way, substituting celery for cauliflower.

Poulet aux Anchois (Chicken with Anchovies).—Stuff the chicken with a stuffing prepared by mincing slices of bacon, with parsley, chives, and a few anchovies, and seasoning them with nutmeg and pepper. Now cover the chicken with slices of bacon, tie some twine round the fowl to keep the bacon in position, enclose it in buttered paper, and roast it before a fire not too hot. Serve it with *jus* prepared from veal and ham, and mixed with two anchovies chopped up small.

Poulet à la Poêle (Chicken Stewed).—Divide a chicken down the middle, and cook it with butter in a stewpan. Thicken the gravy with a little flour, and mix some stock broth and white wine with it, together with shalots, mushrooms, chives, and parsley, cut in small pieces. Season them with salt, nutmeg, and pepper, and stew them into a thick hash.

Poulet aux Fines Herbes (Chicken with Seasoning Herbs).—Mince the liver with chervil, tarragon, chives, and parsley, salt, and pepper, and mix it with butter. Put this stuffing inside the chicken, and secure the opening with twine so that it cannot escape. Cook the chicken for a short time in a stewpan with butter. Afterwards cover it with slices of bacon, and a sheet of paper, and roast it. Now take the butter in which the chicken was dressed, and mix it with two onions and carrots cut small, together with thyme, basil, a bay-leaf, and two cloves. Fry them gently at a moderate heat, taking care that they do not become brown. Then simmer them for half an hour in equal parts of stock broth and white wine, and strain off the sauce, and add some pimperl, chervil, tarragon, and garden cress, minced very fine. Let them simmer in the sauce for half an hour, and then strain. Afterwards stir into it a piece of butter thickened with flour, salt, pepper, and grated nutmeg, and after it has simmered for a short time serve it at table in the dish that contains the chicken.

Poulets à la Sainte Menchould.—Prepare some *fricassée de poulets*, let it get cold until it sets into a thick and solid jelly. Take out the pieces of chicken covered with thick jelly, and roll them in bread-crumbs. Then cover them with raw eggs beaten up, and cook in a Dutch oven, or fry them.

Poulets à la Mulâtre (Chickens Dressed in the Mulatto Manner).—Cut two chickens in pieces, place them in a stewpan with butter, together with half a pound of bacon cut in thin slices, and some *poudre de kari*. When they are cooked, mix some flour with them, and afterwards plenty of stock broth, together with some mushrooms. As soon as the stew is two-thirds done, add some small onions, artichokes, young kidney beans, pieces of cauliflower, or any other vegetable that may be preferred, and boil them over a good fire. Sometimes this dish is thickened with raw eggs before sending it to table.

Poulets en Marinade.—Cut a roasted chicken in pieces, steep it for one hour in *sauce à l'huile*, and drain it. Then dip the pieces in *pâte à frire*, or else in white eggs beaten up, and having fried them brown, serve them with fried parsley.

Poulet à l'Estragon (Chicken with Tarragon).—Blanch some tarragon-leaves in water, dry them, and cut them small. Then mince the chicken's liver, together with some bacon, and mix it with some of the tarragon. Season this stuffing with nutmeg, salt, and pepper, and stuff the chicken with it. Now cover the fowl with slices of bacon, and afterwards with a sheet of paper, and roast it before a moderate fire. Some flour mixed with butter is then to be put into a stewpan, and browned over the fire, and some stock broth and vinegar added, together with the remainder of the tarragon, the yolks of two eggs, with salt and pepper to season it. Thicken the sauce over the fire, but without allowing it to boil, and send it to table with the chicken.

Poulet en Friture (Chicken Fried in Oil).—Divide the chicken into pieces, steep it for an hour in oil, lemon-juice, and vinegar, mixed with salt, pepper, slices of onions, and parsley chopped small. Then remove the pieces of chicken, cover them with flour, and fry them in oil. Afterwards fry in the oil some slices of onion covered with flour, and send them to table arranged on the pieces of chicken. Sometimes fried eggs are also served with this dish. The sauce proper for *poulet en friture* is composed of oil, slices of lemon from which the seeds and peel have been removed, together with parsley and tarragon cut small, and to which salt and pepper have been added.

Poulet en Matelote (Chicken Dressed in Sailor's Fashion).—Detach the wings and legs from the body of the chicken, and cut the carcase into quarters. Cook the chicken in a *roux* of flour and butter, together with a number of small onions, some carrots cut in two, some mushrooms, and a parsnip, also cut in halves. Pour over them some stock broth, and the same quantity of white wine, and add parsley, chives, thyme, and bay-leaves, salt, pepper, and spices. Boil them over a slow fire for an hour, until the hash is reduced to a thick consistence, and then mix with it the crushed liver of the chicken, an anchovy cut small, and half a spoonful of capers.

Poulet à la Tartare (Chicken Dressed in the Tartar Manner).—Remove the feet and neck of the chicken, cut it open and spread it out. Cover it with melted butter seasoned with pepper, salt, and nutmeg. Coat it as thickly as possible with bread-crumbs, and then broil it for three-quarters of an hour. This dish should be sent to table with *sauce piquante*, or some sauce of a similar kind.

Poulet Rôti (Roast Chicken).—Fill the inside of the chicken with a stuffing prepared with the liver and some bacon minced together with the juice and some of the grated peel of a lemon, parsley, and chives cut small. Cover the chicken with slices of bacon, and place over that a sheet of paper covered with butter, to prevent the fowl being browned by the action of the heat, and roast it. When done, remove the paper, and send the chicken to table with any sauce or *ragoût* that may be preferred.

Oie à la Broche (Goose Roasted).—For this purpose only young geese should be used. They may be distinguished by bending the upper portion of the bill, which, if the bird is young, will break easily. Geese are roasted in the manner directed for chickens.

Oie à la Choucroute (Goose with Sour-kraut).—Cook the goose à la broche. Then wash a sufficient quantity of sour-kraut, and put it in a saucepan with some slices of bacon, a polony, and some sausages. Add also some stock broth, and some of the dripping from the goose. Let it simmer for two hours over a slow fire, and place the goose in with it until it becomes hot. Then lay the goose on a dish, drain the sour-kraut, and arrange it round it, together with slices of the polony (from which the skin has been removed), and the sausages.

Oie Farcie de Marrons (Goose Stuffed with Chestnuts).—

Fry in butter about two dozen peeled chestnuts. Drain them, separate the best pieces, and lay them on one side. Mince the rest with the liver of the goose, and mix them with half a pound of sausage-meat, some butter, a little goose fat, a shalot, parsley, chives, salt, pepper, and grated nutmeg. Fry this stuffing for a quarter of an hour, fill the goose with it, and secure it that it does not escape. Then roast it, and serve it with a *ragoût* of chestnuts.

Oie aux Navets (Goose with Turnips).—Simmer the goose in stock broth thickened with *roux*, to which half a glassful of white wine has been added, together with parsley, chives, and thyme, salt, pepper, and nutmeg. When the bird is half done, put in with it some turnips fried brown in butter, and continue to simmer until ready for table.

Oie en Daube (Goose en Daube).—Cover the bird with bacon seasoned with parsley, chives, sage, thyme, and basil, chopped very small, and mixed with salt, pepper, and nutmeg. Then fry the insides of some roasted chestnuts with butter and sugar, and stuff the inside of the goose with it. Tie some string round the goose to keep it in shape. Take a stewpan the size of the goose, cover the inside with slices of bacon, lay the bird in it, and put more bacon over it. Add equal parts of stock broth and white wine, with some slices of leg of veal cut in pieces, four onions, four carrots, a parsnip, parsley, chives, thyme, a few cloves, salt, pepper, and spice. Simmer them for two or three hours, the time depending on the age of the goose, and then remove it from the stewpan. Skim the contents of the stewpan, strain them, and boil down the clear liquor to such a consistence that it becomes a jelly when cold. Lay the goose on a dish, and send it to table with this jelly placed round it.

Chapon Rôti aux Truffes (Capon Roasted with Truffles).—Capon best suited for the table are known by their white flesh and fine skin. The old birds are distinguished by the ruddiness of their flesh and length of their spurs. To prepare this dish, stuff the capon with truffles fried in butter, and seasoned with salt, pepper, and nutmeg. Then truss the bird, wrap it up in paper, and place it in a cool and dry place for four or five days, according to the season. Enclose the capon in buttered paper for two hours, then remove the paper, and brown it a little before sending it to table. *Capon rôti aux truffes* may either be served dry or with *sauce aux truffes*.

Chapon Braisé (Capon Stewed).—Put the capon in a stewpan on some slices of bacon, and cover it with more bacon and some minced veal, together with a carrot sliced, two onions, in one of which a few cloves have been introduced, parsley, chives, thyme, a lemon sliced, but from which the peel and seeds have been removed, salt, and pepper. Add also some white wine and stock broth. Simmer the whole for an hour, and then remove the capon. Strain the contents left in the stewpan, and boil down the strained gravy, thicken it with *jus*, or a little butter mixed with flour, and pour it into the dish in which the goose is served.

Chapon Farci Braisé (Stuffed Capon Stewed).—Stuff the capon with a stuffing composed of the liver of the capon, some bacon, parsley, chives, mushrooms, and roasted chestnuts chopped up together, seasoned with salt, nutmeg, and pepper, and made into a paste with butter. Cook the capon in the manner directed for *chapon braisé*, and thicken the gravy with a spoonful of *marmelade de tomates*, or some crushed mushrooms.

Croquettes de Chapon (Roast Capon made into Balls and Fried).—Mince some roast capon and mix it with chestnuts, and then proceed in the manner directed for *hachis de chapon*. Pour the hachis into small cups, and allow it to get cold. Roll it into balls, cover them with bread-crumbs, and afterwards with white of egg. Fry the balls, and serve them with some *sauce piquante*, or fried parsley.

EMBROIDERY.

I.

THE art of embroidery was originally derived, like many other of our arts and sciences, from the Spanish Moors, by whom it was introduced into Europe early in the Middle Ages. As applied to tapestry hangings, it was at first used among Christian nations for the decoration of churches, and for employment on State occasions only, till Eleanor of Castile set the example of using it for domestic purposes, which was soon generally followed by the wealthier classes. Throughout the Middle Ages

the background. This degeneracy in skill and taste from even the standard of those qualities in their own grandmothers, is in great measure to be attributed to the substitution of so limited a style of work as German wool embroidery for the more beautiful and legitimate styles that preceded it. In Berlin wool-work, as it has been usually practised for the last forty years, anything like real beauty or flow of fancy is an impossibility. That this absence of invention and good taste in their lighter occupations, should continue among ladies is neither necessary nor desirable. An abundant fancy is a characteristic of the female brain, and ladies would be far happier and

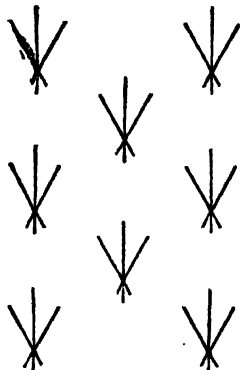


Fig. 1.

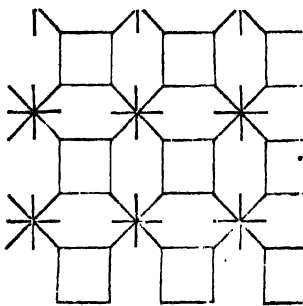


Fig. 2.

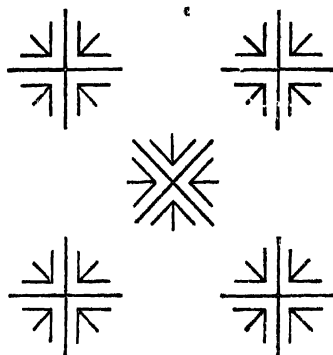


Fig. 3.

needlework embroidery, chiefly for hangings, but also for some other uses, formed the great occupation of ladies when not engaged in domestic or other duties; and the beauty of their work, together with the invention and design which they displayed in it, are such as might well raise the admiration and envy of the ladies of the present day. These old works have not merely the conventional prettiness which is generally the only, though not the

better in many ways if they would allow its free development. Few things could be better calculated to effect this than a return to the graceful and beautiful occupation of their female ancestors. There is at the present time much desire for this shown among the upper classes, and legitimate embroidery is again rapidly becoming a fashionable employment. We propose in the course of this article to give some description of the various methods of

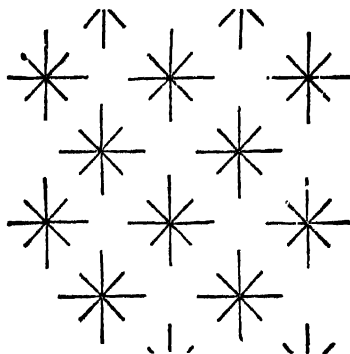


Fig. 4.

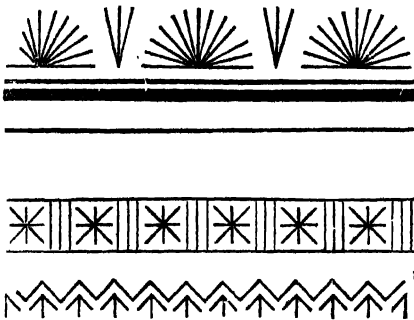


Fig. 5.

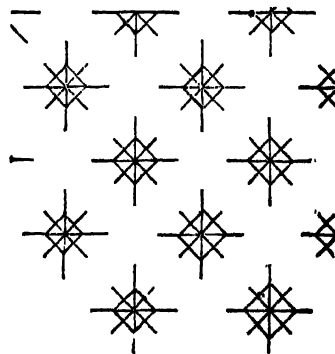


Fig. 6.

invariable, characteristic of modern needlework, but have often real artistic beauty, and display not merely fancy, but even imagination, in the designs. In this respect certainly they have little in common with modern "fancy work," which is apparently so called in a sarcastic sense, from the utter absence of any fancy displayed in it. The modern lady, instead of exercising her inventive powers, simply copies a pattern set before her, stitch by stitch, without the slightest idea of deviating from it if its forms are bad, or of developing any new forms of beauty for herself. Frequently even this mere copying and counting of stitches demands too much mental exertion, and she must either purchase her "fancy work" ready begun, and the pattern laid out for her, or perhaps even with the ornamental group of flowers or other device already finished, and with nothing left to be done beyond filling in

working, and of the stitches used in them, as well as of the materials required. We shall also give a series of original designs, but we trust that our readers will not, after perusing the above remarks, content themselves with merely copying these, but will use them only as stepping-stones to embroidery work in which the patterns will be of their own devising.

The methods of embroidery practised at different times and in different countries, as well as the various stitches employed in them, are almost endless. Taylor, the water poet, in 1640, mentioned by name no less than twenty-one distinct stitches as being in vogue among the English embroideresses of his day. We have not, however, at the present time to deal with the antiquarian aspects of embroidery, but to speak of it as it may be applied to modern practice.

Between ordinary German wool-work and legitimate embroidery there is an intermediate style, which has latterly been somewhat freely practised. It is susceptible of far better effects than the former, and is by no means difficult. Over the ground of German wool, worked in cross-stitch upon canvas, diapers such as those given in Figs. 1 to 6 are over-stitched in silk. Thus treated the German wool-work loses its objectionable flatness, and gains great brilliancy. While on the subject of German wool-work, we would beg our readers to remember, if they continue to practice it in preference to better styles of embroidery, that though it is capable of being enriched as above, it is a method of work which is, artistically speaking, exceedingly limited, and really fitted for the production of flat patterns only, such as geometrical designs, or conventional ornaments. In cross-stitch it is impossible to shade objects in such a manner as to give them any satisfactory resemblance to nature, and the representations of animals and flowers which

stretching some thin grey holland, say at about a shilling a yard, on a common embroidery frame and covering it evenly with paste. The paste used by shoemakers, and to be bought from them will do, but in the section which we shall devote to materials, a receipt for proper embroidery paste will be given. The material must be laid upon the holland and smoothed till it adheres evenly. It will require about twenty-four hours to dry, and after being removed from the frame, the designs which are to be formed in the material may be traced upon the back of the holland, and cut out with a sharp pair of scissors. The above preparation refers more especially to cloth, velvet, &c.; for silk, white lawn is preferable, as a black and white starch should be used with it instead of paste; and indeed for all white materials a white back-lining should be used. Different parts of the design may, of course, be formed in different colours, each to be prepared in the same way. Being cut out, they have to be laid upon the background, which, in our illus-

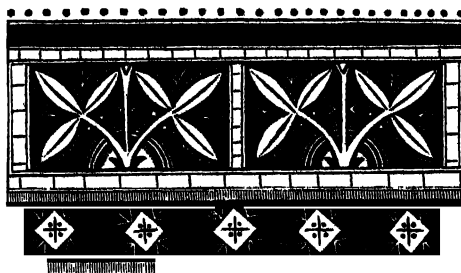


Fig. 7.

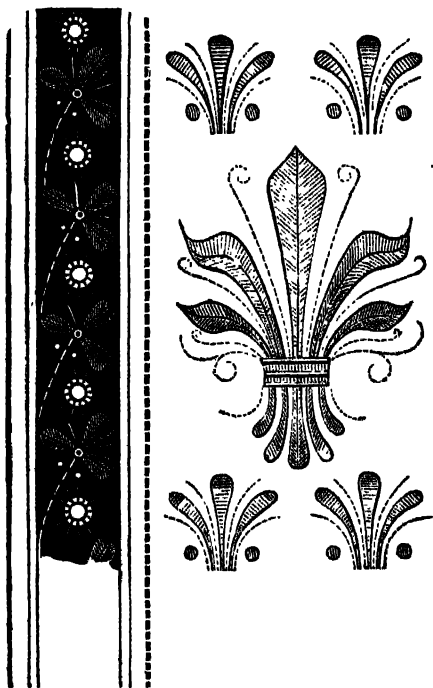


Fig. 8.

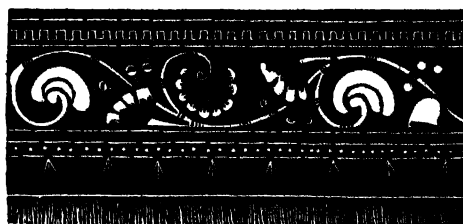


Fig. 9.

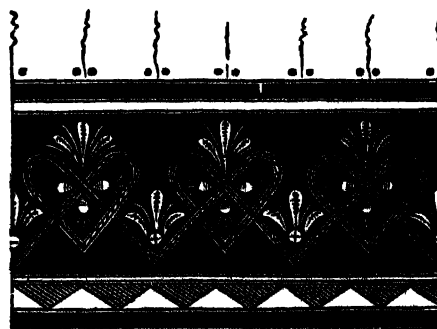


Fig. 10.

have been attempted in it, are as numerous as they have been lamentable failures, and ought merely to be preserved as examples of bad taste.

In *appliqué*, which is a very ancient and always a favourite method of embroidery, broad, flat masses of colour are gained by fixing one fabric over another. In Fig 7 we give a design for a mantelpiece hanging to be worked in this manner. For *appliqué* the materials chosen are usually velvet, silk, cloth, and cloth of gold or silver; when velvet is used it should always be silk velvet. It may be employed for a variety of purposes, such as cushions, curtains, the covering of chairs, &c., and though shading cannot be attempted in it, it produces rich and fine effects in flat patterns.

The ordinary method of preparing the materials is, by

tration, is supposed to be of black, or dark purple, or maroon cloth, and fastened to it round the edges with sewing silk. There are two ordinary ways of edging the pieces laid on in *appliqué*, that which has the richest effect is bordering them with a moderately stiff cord (as shown round the trefoils in our illustration), and sewing over this with silk. Gold-twist makes the most splendid bordering of this kind. The other is that shown round the semi-circular pieces at the roots of the stems, and which consists in working round the applied material with bright-coloured silk in button-hole stitch. It will be observed that a considerable space is left between these stitches to give them their full effect.

In ordinary flat embroidery, no applied materials, as of pieces of fabric, cord, or spangles are used, nor is any

part of the pattern raised by cardboard, or other packing beneath it, and the design depends entirely for its effect upon the coloured stitches used in it. This was the kind of work most in vogue in the days of our grandmothers, and it is, as it admits of shading, the most delicate and beautiful, if not the most striking kind. The beautiful Eastern embroidery—Indian, Chinese, and Japanese—is mostly of this class, and may, in arrangements of colour, form good examples for imitation.

In raised embroidery, different substances are placed over the material, to give the effect of relief to the stitches. An approved modern method of working, is by raking cardboard—that known as thin mounting-board is good—tracing upon it the design to be raised, and cutting it out, care being taken to leave sufficient points of attachment in the more delicate parts of the design. The pieces of card have then to be sewn strongly in their places, upon the material which is to form the ground, with cotton, and the bits of cardboard left for support cut away. If the design is to be still further raised, as would be recommended in working the large fleur-de-lis in Fig. 8, a line of even twine should be sewn down over the centre of the figure, and over this a silk or gold thread can be worked. More than one row of twine should not be used, or the effect will be spoilt; and the thickness of it must depend upon the amount of relief required. If the figure is to be worked in gold or gold colour, the card beneath it should be coloured with gamboge. Fig. 8 is a design for an embroidered curtain-border, with an edging of velvet, the principal parts of the pattern to be worked in relief; this will look very handsome if the fleur-de-lis is worked in gold thread or gold-coloured silk. Fig. 9 is a mantelpiece hanging, in which the fan-shaped flowers are also in gold, and raised upon card, the line of twine being near their outer extremity; they may, however, if preferred, be worked in coloured silks; the ground should be dark velvet. In Fig. 10, which is intended for the border of a table-cover, the raising of the embroidery is effected by merely laying on a coloured cord up the centre of the running pattern, and sewing it down.

SOCIETY.—XI.

FLORAL TABLE DECORATIONS, BOUQUET-MAKING, ETC.

(Concluded from p. 287.)

IN one form of table decorations the base of the epergne assumes the style of the ribbon borders, so prominent a feature in most ornamental gardening. The most simple mode of carrying out the plan consists in the use of variegated leaves, interspersed with blossoms remarkable for harmonious colouring. The perfection to which the culture of the variegated colchus and geranium leaves has been brought is being emulated in many other descriptions of plants.

The base of an epergne is a fitting place for the display of these productions. Some drooping grasses and fern-leaves should be arranged to fall over the sides of the epergne, of a sufficient length to just touch the table-cloth. The usual mode is then to place the largest leaves and those of the darkest shades in the outer circle of the stand, reserving the smaller ones and those of the palest tints for use nearest the stem. A few blades of either tussock or ribbon grass, placed in the sand, and fastened mid-way up the stem of the epergne, leaving the tops of the grass to fall over in a palm-like manner, produce a very pretty effect.

If flowers are introduced in the base of an epergne composed of variegated foliage, the tints should bear some resemblance to the colours of the leaves. This is not a difficult matter, now that rose and various shades of

yellow and brown are so frequently seen on one geranium leaf. In the absence, however, of these tints, the double bachelor's button, or golden drop, choice French marigolds, small tufts of scarlet lychnis, and similar well-known blossoms, are very suitable for throwing in the required effect.

If the top of the epergne consists of a tray-like vase, precisely the same kind of drooping grasses should be contrived to fall over the sides as at the base. Unless the vase be made of zinc, admitting of the use of sand, stems of grass will require to be kept in their place by being covered with flat pebbles. A few sprays of fuchsia are a very pleasing addition to the drooping foliage used for the summit of an epergne. If it be desired to produce a raised eminence in the centre, some kind of vase or basin should be placed in the tray, care being exercised to conceal its presence by flowers and foliage. Meadow-sweet is now-a-days the favourite flower for the summit of epergnes. Any flowers of a feathery or light branching kind, would be equally appropriate.

It is to be regretted that a more general use is not made of our lovely field flowers for purposes of table decoration. Although unfit for hand-bouquets, on account of the great amount of moisture they stand in need of, they are admirably adapted for the above purpose. Even the most skilful and professed bouquet-makers know of no substitute for the common "totter," or quaker grass, and introduce its shimmering hues wherever they desire to tone down the too glowing colours of the rose and calceolaria. With the exception of the maiden-hair fern, no cultivated grass answers the purpose equally well. The ragged robin, scarlet poppy, wild clematis, butterfly orchis, honeysuckle, lady's mantle, "shoes and stockings," blue-bells, wild anemones, and the ever-welcome daisy, together with numberless less common, but equally beautiful "gifts of nature," in the truest sense of the term, abound wherever there are green fields and hedgerows. Whatever may be thought in mansions and palaces of our lowly favourites, there are many spheres of life in which the claim of wild flowers, beyond dispute, merits to be recognised. It is in nurseries, and in the simple village homes of middle-class life, that these floral treasures repay tenfold the care bestowed on their gathering. Little children are great gainers by being taught to value and make use of the bounties which come naturally within the sphere of their use and observation; and the unpretending home of the lowly mechanic may be adorned by the refining influence of flowers at small cost of labour, by preserving the handful culled at random in an evening walk, and kept from day to day to gladden the eyes of those whom daily toil debars from out-door pleasures.

But to return once more to the subject immediately connected with the design of the present paper. The appropriateness of bouquets as complimentary gifts is so generally acknowledged, that we scarcely need refer to it, beyond stating that on special occasions a conventional form and significance are to be observed in similar offerings. As the manner of making up all flowers for bouquets is in most cases the same, we will begin by describing the process. The materials required for the work are, a pair of tolerably large, and a pair of small-sized scissors, some soft cotton or silk, some fine wire, such as is used by artificial flower-makers, and some cotton wool in sheet. The *bouquetière* should begin by sorting the flowers as already described, contrasting the hues, and removing all superfluous foliage. Not a particle of anything likely to be useful should be thrown away until the bouquet is completed, because it is impossible to tell what may not be wanted; and sometimes the foliage least effective, when seen by itself, enhances marvellously the beauty of showy and attractive flowers in combination.

As a general rule, the most useful flowers for bouquet purposes are those which are culled from flowering shrubs. The fibrous nature of the stems renders this class of plants more lasting in warm rooms than soft-stemmed plants. The latter kind require a considerable amount of moisture to preserve their freshness, and are, therefore, better adapted for the decoration of vases where water can be freely used than for carrying in the hand. The use of many gems of the flower borders is thus denied the bouquet-maker; as, for instance, the rich pansy and early primrose and violet. When used in clusters of considerable numbers, however, the violet, although soft-stemmed, is available.

The bouquet-maker having selected her flowers, it seems hard to say that the work of destruction should be the first task; but the modern bouquet is simply an artistic production, and the *bouquetière* must be ruthless in her treatment of the lovely materials. In the matter of foliage, gardeners provide usually, but sparingly, the kind belonging to the blossoms, knowing full well that blossoms are most needed. Any rose-leaves, or green sprays of azalea that may be attached to the blossom are more useful when separated from the stem; therefore all foliage of the kind should be attached to fine wire, to be made use of as occasion may require during the making of the bouquet.

The process of wiring flowers likely to shed their leaves should then commence. This is done by passing pieces of wire through the calyces of the flowers. Wire from six to seven inches in length, for a fair-sized bouquet, should be at hand for the purpose. The end of the wire that has been passed through the flower should be bent down on the opposite side and fastened closely to the stem of the plant with some fine green cotton. It does not matter how short the stems of the blossoms may be, as the wire may supply the necessary length of stalk. The flowers that require the greatest care in wiring are roses, carnations, pinks, azaleas, gardenias, camellias, and others of the same kind. Flowers that are devoid of any stem may be used for bouquets by making use of wire in the manner described.

Most amateur bouquet-makers crowd the flowers too much together. This is partly owing to not using wire, and partly because they do not know how to fill in the spaces left between the flowers when spread apart. This is best done by introducing ferns, grasses, or any similar foliage, as a finish. The most beautiful rose bouquet the writer has seen was composed in the following manner. Every rose was a choice specimen, and to all appearance each spray was put into place in the same state as that in which it had left the bush. On taking the bouquet to pieces, however, it was found that not only had every blossom been wired, but every leaf detached and wired also. Except that the roses were natural, their various parts had been subjected to precisely the same treatment as is observed in making up artificial flowers. The spaces between the rose sprays were filled in with maiden-hair fern, wired also. The charm in the bouquet consisted in the air of looseness with which the flowers had been put together, instead of the compact masses of blossom which too often constitute the modern bouquet.

A very slender piece of wood is necessary for the centre of a bouquet. Upon this the work of fastening the flowers is carried on as stated in a foregoing article on the subject. If the character of the intended bouquet be of the present fashionable shape, a rose of a large kind should be placed at the summit. The *Gloire de Dijon*, *Souvenir de Malmaison*, or climbing *Devoniensis*, are the best kinds for this position. Around the rose may be placed small kinds of flowers in tufts, all of one kind, and of a colour that contrasts well with the rose. Thus tiny bunches of violets are effective against a white rose, and the same arrangement of *mignonette* is suitable for roses of a full

red tone. Lines of the same flowers as form the upper circle, are very much used to form a section-like division of colours. These lines or stripes should always be in strong contrast to the rest of the flowers.

Before finishing the bouquet with the customary paper frill, grasses or light ferns should be plentifully used. In the absence of choicer kinds, the striped ribbon-grass forms a very pretty finish. All the blades should be of equal length, and fastened end to end, the middle thus representing a loop. Two or three rows of loops of grass are very effective, and infinitely preferable to the ruchings of blonde, tulle, and Brussels net, which are often seen round handsome bouquets. Still less should silken cord and silver tassels be used as a finish. A great improvement in bouquet papers is noticeable. The papers may be had of the principal florists. They consist in a cardboard backing and handle in the same piece, thus dispensing with the clumsy arrangement of loose papers frequently in use.

It is usual to present bouquets of different kinds on various occasions. Fashion also decrees that the bouquets should be of a characteristic kind. For instance, the recurrence of a birthday affords a suitable occasion for paying a compliment of a more marked character than mere words express. Birthday bouquets intended as offerings to young people, are most appropriate when composed of spring flowers—wild if possible. Daisies, dog-roses, forget-me-nots, violets, primroses, and meadow-sweet, are especially eloquent of the attributes connected with the dawn of life. In similar offerings to aged people, foliage, berries, and flowering shrubs should constitute the principal feature. Sad occasions also there are in life when flowers may be made as expressive of our sympathies as they are typical of rejoicing. Thus the daily-increasing custom of consigning to the last resting-place of beloved friends and relatives mementoes of affectionate regard in the form of garlands and emblematical designs, affords opportunity for the use of such flowers as the simple heart's-case, the sorrowful yew, and the constant bay-leaf. The lily as typical of innocence, the *Michaelmas* daisy of farewell, the harebell of submission, and the marigold of grief, are equally appropriate.

The bride's bouquet is essentially an artistic production, in which purity is typified in the representative flowers of spotless whiteness. Strictly speaking, a bridal bouquet should be composed of nought but white flowers, stripped of even their green foliage. Lilies of the valley, white lilac, white violets, gardenias, camellias, white roses (especially the *boule de neige*), jessamine, and white carnations, and orange-blossom, are amongst the most popular flowers for the purpose. Widows, when contracting a second marriage, receive also a bouquet from the hands of their intended husbands, and upon such occasions, although white flowers largely predominate, shaded flowers, and those of subdued tints, such as orchids, are generally used.

Bridesmaids' bouquets are the gift of the bridegroom to the bridesmaids, and should be of the same predominant shade as seen in their dresses for the occasion. Thus, if blue be the principal colour, the ragged robin, forget-me-not, heather-bell, or some similar flower should be introduced in combination with plenty of white blossoms. If rose be chosen, rose-coloured flowers in season should be made use of. In any case, simplicity should be observed in selecting flowers for bridesmaids' bouquets, the tints being especially subject to the style and colour of the dresses worn.

As offerings to people somewhat advanced in life, the bouquet should be made to assume richness of colour and variety of selection. Following this rule, full-coloured flowers are most suitable as gifts to ladies of mature years.

CLOCKS AND WATCHES.

IV.

Pendulums.—Most clock pendulums consist of a wire or light wooden rod with a small bob. By the rule that the time varies as the square of the length, the length required to beat any given time can be approximately found. Should the result not be strictly correct, the difference may be adjusted by trial. There is yet another consideration which must not be lost sight of: of whatever material a pendulum is composed, it is liable to expand by heat and contract by cold; the real length, therefore, increases or diminishes accordingly. The rates of contraction and expansion of different materials have been frequently set forth in tabular form, but this is not always a perfect guide, as something must be allowed for the working of the metal. It is neither advisable nor necessary to calculate more than a rough, and, in some cases, a second approximation, leaving the final adjustment to be made by trial.

The simplest and one of the best compensation pendulums would be a wooden rod with a leaden bob, about fourteen inches long, if its tendency to expansion could be counteracted and the wood preserved from the absorption of moisture—if, in short, it could be kept free from the disturbing influences which render its action uncertain. It has, however, after repeated experiments, been found impossible to make the rod damp-proof.

The apparatus known as the mercurial pendulum was invented by a clock-maker named George Graham, about 1715, with a view of rectifying this deficiency; its principle being the same as that of the pendulum of wood and lead. The rod is generally a flat piece of steel with a kind of stirrup at the bottom to carry a glass jar, which acts as a weight or bob, and is partially filled with mercury. The same change of temperature which causes the steel rod to expand downwards from its point of suspension, also makes the mercury ascend upwards from the bottom of the jar. The jar would be lowered by the expansion of the rod, were this not counteracted by the rise of the mercury, as the expansion of any given bulk of that substance is many times greater than that of the same bulk of steel. The rate of vibration therefore remains unaffected, as the centre of oscillation remains the same. Experiment only can accurately determine the requisite quantity of mercury. If the jar have a diameter of two inches,

which is the usual size, the height of the column will be $6\frac{1}{2}$ inches. Great care must be taken in calculating, and afterwards in adjusting, the height of the column; for if it is too high the pendulum will be over-compensated, and if it is not high enough its expansion will not counteract that of the steel rod. The contractions which take place from the operation of cold will, of course, be balanced in like manner as the expansions from the operation of heat. At D, in the illustration, there is a screw, which, being turned, the stirrup is raised or lowered upon the rod, and the length of the pendulum is thus adjusted.

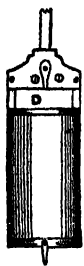
Long pendulums can be compensated at little more expense than short ones by means of the mercurial tube compensation. For this purpose a long cast-iron bob, with a cistern for mercury at the bottom, is used. Out of this cistern rises a thin tube, ending in a bulb at half the height of the rod. In the coldest weather the mercury ought just to reach the bulb, so that, as it gets warmer, some will ascend out of the cistern into the bulb. It will be found on calculation that the quantity of mercury required to make the compensation in this manner should be about one-fourth of the weight of the bob. A large screw-plug should be appended to the cistern for the

purpose of adjusting the mercury, and the pendulum rod should be so constructed as to leave sufficient room to enclose the mercurial tube and the bulb attached to it.

When a pendulum is made as nearly as possible of the proper length, it is still necessary to have some means of adjusting it so that it may make its vibrations in the proper time. Changes in the state of the clock may require that the adjustment itself should be altered occasionally. A very simple mode of effecting this is by a nut at the bottom of the rod, or, if there are several of these, then at the bottom of the principal rod. The bob and the compensation rods (if there are any) can be thus easily raised or lowered. The nut usually has a graduated head with an index over it to mark how much it is to be turned. It is only necessary to know what alteration of time is caused by one turn of the nut, which can then be subdivided as occasion may demand. If it can possibly be avoided it is always better not to stop and disturb even small pendulums in this way; but it is in large pendulums that the inconveniences of this mode of occasional regulation are more fully manifest. It is a task of extreme nicety to raise the heavy bob of a large pendulum without twisting either the compensation tube, or rod, or the spring at the top, and extreme care is therefore necessary. In astronomical clocks the rate is from time to time ascertained by observations and registered, the pendulums being seldom regulated to any great degree of nicety. The addition of a small weight at a certain point in the rod has the effect of accelerating the pendulum more than if it were placed elsewhere. The pendulum need not be disturbed in putting on or taking off these small weights. It can be regulated for a range of errors up to eight seconds a day by having a set of small weights with marks on them, such as 4, 2, 1, $\frac{1}{2}$, $\frac{1}{4}$, according to the number of seconds each will accelerate the pendulum in a day; but the regulating screw at the bottom must be altered for anything beyond eight seconds a day. It is advisable that some of the small weights should be on the pendulum ready to be taken off if the clock gains; so that the pendulum should be calculated to lose a little before the weights are put on.

A pendulum ought to be so hung that the pivot of the pallet is exactly opposite the bend of the spring. This arrangement secures the minimum of friction upon the fork (or bent end of the arm or crutch) which embraces the pendulum. The fork, however, should never be left too tight, because a spring does not bend at one point only, as a string does, and consequently the bob of a pendulum hung by a spring never moves exactly in a circle: hence, if the fork fit the pendulum-rod too tightly, the difference in the oscillation is sometimes so great as to stop the clock. The opposite error, too—viz., of the fork fitting the rod too loosely—should be carefully avoided, as in that case the pendulum shakes in the fork with a kind of sliding motion. A drop of oil should be applied to this part, and then the pendulum—if the fit is perfect—will have free play, without shake or tightness.

Cleaning Clocks.—To know how to clean a clock is of great advantage to the household mechanic, and we shall, therefore, give practical directions on this head. First of all the movement of the clock should be taken to pieces, and the wheels and pinions thoroughly well brushed with a coarse, stiff brush, as also the plates into which the trains work. The pivots likewise require cleaning, which may best be done by turning in a piece of cotton cloth, which must be held tightly between the thumb and finger. To clean the pivot-holes in the plates, a soft cord or strip of cotton cloth, drawn tightly through them, will be found the best method, but it is advisable to use two cords, the first slightly oiled, and the next quite dry and clean. "Bushing" is a process required when the holes through which the great arbors or winding axes work have become too much worn, and, consequently, the



great wheel on the axle strikes too deeply into the pinions above it thus stopping the clock. This operation—bushing—is most usually performed by driving a steel point or punch into the plate, just above the axle-hole, forcing the brass downwards, until the hole is reduced to the proper size, the same as it was originally. Should the pinions be worn, it will be necessary to turn the leaves or rollers so that the worn parts may be towards the arbor or shaft, and to fasten them in that position. In case the pinions are “rolling” ones, and cannot be otherwise secured, a little soft solder must be used. In oiling the pallets and pin, the oil should be used very sparingly, and none but the best watch-oil employed.

In putting up the clock, it is of common occurrence to get some of the striking-train wheels wrong, which will cause a derangement in striking. Should this occur, set the plates apart on the striking side, and slip the pivots of the upper wheels out, which being disconnected from the train, turn them partly round and put them back. Should this not prove sufficient, repeat the same process once or more times if necessary.

In finding out a derangement, examine the pendulum-wire at the point where the loop of the verge-wire works over it. A small notch, or, at least, a rough place will generally be found worn there. This must be rendered *perfectly smooth*, otherwise the clock will not be likely to go well. This is a very general cause of the stopping of clocks.

The following list of tools and requisites will be found handy:—

Small bench-vice; pin-vice; cut nippers and pliers; tweezers; several sized screw-drivers; various brushes, fine and coarse; pin-file; bench-knife; burnisher; peg-wood; watch-oil; oil-cup; nicely-made oilers; wooden cap for holding parts (cleaned); glass-covers, eye-glass; prepared chalk or bone; pith of the elder-tree; fine chamois skin; tissue and bench-paper; and bench-apron.

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SAVINGS BANKS.—II.

POST-OFFICE SAVINGS BANKS.

POST-OFFICE Savings Banks, owing to the superior facilities they offer, have attracted quite a new class of depositors, which were never reached by the old savings banks.

In their internal organisation and management, however, they differ very slightly from those we described in a former article, and one of their advantages consists in their funds being immediately under the protection of the Government. In ordinary savings banks the various deposits do not receive the protection of Government until they have been transferred by the trustees or managers into Government securities, but with Post-office savings banks they become protected by Government the moment they are paid to the postmaster.

For the instruction of depositors, the Post-office authorities issue, in their “Postal Guide,” every information concerning the regulation of Post-office savings banks that is likely to be of any use to intending depositors. Bearing this in mind, we shall describe very briefly the distinctive features of this class of savings bank.

The executive of a Post-office savings bank is vested in the postmaster of each place in which they exist. The deposits received by him are remitted to the Postmaster-General, who in his turn pays them over to the Commissioners for the Reduction of the National Debt. This officer also has power to make, alter, or add to, the rules of the various banks under his control, and copies of such rules must be laid before both Houses of Parliament within fourteen days from the making thereof, if Parliament, that is to say, should be then sitting, but if it is not, then within fourteen days from its next re-assembling.

Deposits of any amount not less than one shilling, and not including any pence, may be received at these banks, subject to the same limitations which are imposed on the savings banks of the first class—namely, that no depositor is allowed to increase the total amount of his deposits by more than £30; that the total amount, exclusive of interest, never exceeds £150, and with interest, £200. The interest paid is at a somewhat lower rate than in other banks of the same nature, being only two and a half per cent., and is not calculated on any sum less than £1, or some multiple thereof. Depositors must, on making their first deposit, give their Christian and surnames, together with a description of their occupation and residence, and must sign a declaration, in which they must affirm that they are not entitled to any deposit in, or benefit from the funds of any other savings bank in the United Kingdom; nor to any sum standing in the name of any other person in the books of the Post-office Savings Bank; and that they give their consent to the management of their deposits in the Post-office Savings Bank according to the rules and regulations thereof. The signatures must be witnessed by the postmaster, or by some one personally known to him, or by the incumbent, or a churchwarden of the parish in which the depositor dwells, or by a justice of the peace. Each depositor has a pass-book given to him, in which the amount of his various deposits is inscribed, and in which, in the presence of the postmaster, he must sign his name; and this book is to be considered as evidence of the receipt of the deposit. This book must be forwarded once a year, on the anniversary of the day on which the first deposit was made to the principal office, but no charge for postage will be made for transmitting it to the Postmaster-General. Should any depositor desire to transfer the amount of his deposits to an ordinary savings bank, not under the control of the Postmaster-General, he can upon application to the chief office of the Postmaster-General, be supplied with a certificate stating the whole amount due to him with interest, and thereupon his account with the bank will be closed. Upon the delivery of this certificate to the trustees or managers of the savings bank to which the depositor proposes to transfer the amount due to him, they may, if they should think fit, open an account for the amount stated in such certificate, for the depositor, who shall thereupon be subject to the rules of the savings bank to which he has thus transferred his account. The same form is observed in the reverse of the case; that is to say, in the transfer of an account from an ordinary savings bank to the care of the Postmaster-General, when the certificate is signed by two trustees of the bank, and handed to the Postmaster-General, and the depositor is then considered as bound by the rules in force for regulating Post-office savings banks.

Repayments will, however, only be paid to the depositor in person, or some person legally authorised to claim on his behalf, and he will be absolutely entitled to receive the amount due to him ten days after his demand is made, at any post-office where deposits are received and paid. To enable a depositor to withdraw the whole or part of any sum deposited by him, application must be made by him in a form provided by the Post-office authorities, and which will be supplied to him on request. After this has been received at the General Post-office, a warrant for the amount payable at the office named by the depositor, will be sent to him. This must be presented by the depositor at the post-office named in the warrant, together with the depositor's book, in which the postmaster enters the amount repaid.

The same regulations with regard to the payment to the representatives of a deceased depositor, apply equally to Post-office savings banks, as to those of Class No. 1, which we endeavoured to lay before our readers on a former occasion.

Finally, the officers of the Postmaster-General engaged in the receipt or payment of deposits, are not allowed to disclose the name of any depositor, nor the amount deposited or withdrawn, except to the Postmaster-General, or to any of his officers who may be appointed to assist in carrying out the provisions of the Savings Banks Act.

With the exception of the distinctions pointed out above, Post-office savings banks differ in no respect from ordinary savings banks; and the superior advantages they offer consist in—as we have before stated—1st, The more immediate protection of their interests by Government, and consequent greater security; and, 2ndly, the greater facilities offered to the poorer classes for depositing their earnings; for a member of a savings bank conducted under the authority of the Postmaster-General, can deposit his earnings in any town in the United Kingdom where there is an office for granting Post-office orders, so that wherever he went, a depositor would always have a bank close at hand open to him. In ordinary savings banks this is, of course, not the case, for a member can only make his deposits in the bank to which he belongs; so, should he be at a distance from the town in which his bank is situated, he would either have to send his deposits through the post to the managers, or effect a transfer of the amount due to him to a bank nearer at hand, which of course would entail a little expense and a good deal of inconvenience, so that from these two instances the superiority of the Post-office savings banks is clear.

Savings banks of the third class, or Military Savings Banks, are established for the benefit of the non-commissioned officers and soldiers employed in Her Majesty's service, either in the United Kingdom or upon foreign stations, India alone excepted, and are regulated by rules drawn up by the Secretary for War, and approved of by the General Commanding-in-Chief. These regulations, when sanctioned by the Queen, must be laid before both Houses of Parliament, and a copy of them must be deposited in the orderly room of every regiment to which they apply.

These regulations are to determine the rate of interest to be paid to depositors, which must not, however, exceed £3 15s. per cent., and on what sums interest should be paid, and the length of time deposits must remain in order to bear interest. They also make provision for the retention, or deposit in the military savings banks, of the effects of deceased non-commissioned officers and men, and for the application thereof to the benefit of the orphans of the soldiers, or other persons entitled to the same; for the deposit of funds created for charitable regimental purposes, by subscriptions of officers, or in other ways; for the withdrawal of any sums of money from the regimental savings banks for the purpose of transfer to India, deposited in them on the occasion of regiments proceeding to India; and generally for all matters connected with these savings banks, and the deposits made therein.

The money deposited in these savings banks is to be applied by the persons authorised to receive the same to the payment of such ordinary army services as it may be their duty to defray; and all sums from time to time payable to depositors for principal and interest, in respect of money so deposited, shall be paid out of the grants by Parliament for ordinary army services.

The Commissioners for the Reduction of the National Debt, who are also authorised to receive payments on account of military savings banks, must cause all the sums so placed to their account to be invested from time to time, under such regulations as they may direct, in the purchase of Bank annuities; and the Secretary for War may also direct these annuities to be sold, and the produce paid to the account of the paymaster-general of the Bank of England, and the certificate of the cashier of the

Bank of England will be a full discharge to the Commissioners. In all other respects, military savings banks are conducted on the same first class, and on the same remark.

Savings banks for seamen are regulated by the Merchant Shipping Act of 1854; by this Act the Commissioners for the Reduction of the National Debt may, on the recommendation of the Board of Trade, establish savings banks at such ports and places within the United Kingdom, either in the shipping-offices established in such ports, or elsewhere, and may appoint treasurers to receive from or on account of seamen, or the wives or families of seamen desirous to become depositors, sums not exceeding £150 in the whole. This Act has been extended by a later Act to all seamen belonging to the Navy, as well as to the mercantile marine, together with their wives and families. These two Acts have been lately extended by one passed in the year 1856, by which it is enacted that the Board of Trade may establish in London a central savings bank for seamen, and branches at such ports of the kingdom as they may think expedient, for receiving the deposits of seamen, or their wives, or widows, or families, so long as the aggregate amount of each depositor's account does not exceed £200. The Act further says that the Board of Trade may make regulations for the conduct of these savings banks, and from time to time alter them as they may think fit; and it provides against the possibility of money being paid to a wrong person, by a fraudulent representation on his part, by laying down that any one forging any document showing a right to any deposit or interest, or making false representations in order to obtain deposits or interest, shall on conviction be punishable by penal servitude for a term not exceeding four years. These are the only material differences which exist between savings banks of this sort and those of the first class; and, with the exception of the distinctions we have pointed out, they may be considered to all intents and purposes as belonging to the first class.

We have now stated, as clearly as it is in our power to do, the substance of the law by which all savings banks are governed, and we have particularly sought to make clear the working of the Post-office savings banks, owing to the facilities they offer every member of a household. We suggest that should anything, notwithstanding our efforts to prevent it, appear obscure, a reference be made to the rules laid down by the Postmaster-General for the regulation of Post-office savings banks, and which are contained in the "Postal Guide;" this, we think, would tend to give the intelligent reader a clearer idea of what a savings bank in working order really is, than that which we have endeavoured, but in such a case failed, to convey.

FRUIT DAINTIES.—VII.

GOOSEBERRIES.

Gooseberry Jam.—Take some gooseberries that are not too ripe, pick them carefully, and lay them at the bottom of an earthenware pan, and cover them with sugar. Keep on doing this, until the pan is almost filled, and then add a pint of water to every six pounds of gooseberries. Put the pan in a moderately heated oven, until the sugar is converted into syrup, and the contents begin to boil. Then remove the preserved fruit, and put it while hot into small jars, which should be securely covered with several layers of white paper.

Gooseberry Jelly.—Bruise a quantity of gooseberries and pass the pulp through a somewhat coarse cloth, and add three-quarters of their weight of lump-sugar. Boil the fruit with sugar into a jelly, so thick that when a little is dropped on a plate it will not adhere to it, and then strain it.

To Pickle Gooseberries.—Let them soak all night in salt and water, then place them in a wide-mouthed bottle or jar, fill it up with vinegar, and secure the mouth of the vessel with a tight-fitting cork.

Candied Gooseberries.—Select some very fine gooseberries, wipe them carefully with a clean soft cloth, then boil into syrup with a little water twice as many pounds of sugar as you have employed fruit, until it is ready to candy. Remove the syrup from the fire, and when nearly cold, put into it the gooseberries, and stir them with a wooden spoon.

To Preserve Gooseberries.—Select for this purpose fruit that has arrived at its full growth, but which is not too ripe. Pick them carefully, and place them in very dry, wide-mouthed glass bottles, stop them close, and place them in a pan of cold water. Place the pan on the fire, and let it become hot gradually. When the fruit is scalded, take the bottles from the water, cork them, and cover the corks with bottle-wax, so that no air can enter.

Gooseberry Tansy.—Fry a pint of well-picked green gooseberries in a quarter of a pound of fresh butter, then add eight eggs, beaten up in a quarter of a pint of milk or cream, sweetened with loaf-sugar. Let it remain for a few minutes longer on the fire, and then send it to table covered with crushed lump-sugar.

Gooseberry Wine.—Pour a gallon of water over sixteen pounds of ripe gooseberries, bruise them well, and let them remain for two days, during which time they must be frequently stirred. Then strain through some coarse material, add four pounds of lump-sugar, mix them together, and allow them to stand for some time. Then strain the liquid into the cask through a flannel bag. When the wine has ceased to ferment, put the bung into the cask, and let it remain for two months before bottling it.

Another Way to Make Gooseberry Wine.—Put some ripe gooseberries into a cask, bruise them with a stick, and pour boiling water over them, the quantity of water required being about one gallon to sixteen pounds of fruit. Close the cask, and let it stand for a month, then ferment the liquid with sugar, using four pounds for each gallon of water.

Gooseberry Fool.—Scald a quart of picked gooseberries in the same quantity of water, until they become soft. Then mash them up with three pounds of lump-sugar. Boil the fruit until it becomes thick, then add a pint and a half of milk or cream, and six eggs. Simmer them over a slow fire, taking care to stir them continually. When quite done, pour the gooseberry fool into a tolerably deep dish, and send it cold to table.

ORANGES.

Orange Pie.—Cover the inside of a pie-dish with paste, and lay in it some oranges cut in slices. Then put over them some sliced apples, from which the cores and rind have been removed. Place more oranges on them, and plenty of loaf-sugar, with enough water to moisten them. Cover the pie with paste, bake it, and sprinkle some crushed lump-sugar over the surface.

Orange Sweetmeats.—Put the oranges in salt and water, and simmer them for a short time. Then remove them from the salt water, and boil them in fresh until tender. Beat them into a paste with an equal weight of loaf-sugar. Then boil the paste until it is ready to candy, pour it into plates, dry it, and cut into suitable shape.

Orange-peel Pudding.—Remove the peel from six oranges, and boil it in water until soft. Then beat it into a paste in a mortar, and mix with it a quarter of a pound of biscuit boiled in milk, together with four eggs, and some salt, nutmeg, and sugar. Then cover the inside of a pan with paste, fill it with orange pudding, and bake it.

Orange Marmalade.—Peel about two dozen Seville oranges, cut them in halves, squeeze the juice from them into a basin, and put it in a cool place. Then boil

the oranges, remove the pips, and beat them up in a mortar with an equal weight of sugar. Boil them again until they are ready to candy. Then put in with them the juice, and peel cut in pieces, together with their weight of sugar, and boil briskly until reduced to the consistence of jelly.

Orange and Apple Preserve.—Peel some oranges, and simmer them until tender. Then cut them into slices, remove the seeds and put them into jelly-pots. Now prepare some apple jelly, and pour it over them, so as to fill the pots.

Oranges Preserved in Syrup.—Remove the peel and seeds from some oranges, cut them in slices, boil them for a considerable time in strong syrup, and preserve them in pots or glasses.

Orange-flower Lozenges for Sweetening the Breath.—Beat up some orange-flowers in a mortar with loaf-sugar, and make it into a paste with white of eggs, and gum tragacanth dissolved in water. Roll it out and cut it into pieces of the proper size.

Orange Brandy.—Put the peel of two dozen oranges into a quart of brandy, and a gallon of sherry wine. Let them macerate for a month, strain, and add a pound of loaf-sugar.

Orangeade.—Pour a pint of boiling water over a sliced orange. When cold strain it, and sweeten it to suit the palate.

Another Way to Make Orangeade.—Squeeze the juice from six oranges and two lemons into a quart of boiling water, then slice them, and put them in with the juice. Pour the fluid frequently and quickly from one jug to another, and strain it.

Orange Butter.—Beat up two quarts of cream, with a quarter of a pint of orange-flower water, and the same quantity of claret. When the cream is beaten to the thickness of butter, it will have both the colour and scent of the orange.

THE HOUSEHOLD MECHANIC.—LXVIII.

PAINTING (continued from p. 79).

Colours.—Colour is not an inherent property of any body, but is due to the effect of the body upon ordinary light, which, as is well known, is composed of rays of various colours. If a body absorbs scarcely any light, but reflects it, the body will appear white; if, on the other hand, it absorbs nearly all the light, it will appear black. If, however, the body contains any substance (pigment) that has the power of decomposing white light, its colour will depend upon which of the rays of light it absorbs and which it reflects. Strictly speaking, therefore, the colour of a pigment is due to light which it cannot absorb, and which is reflected to the eye of the observer. White being an entire (or almost entire) reflection of all the rays of light, and black a total absorption of them, are, in consequence, not colours, in an exact sense. We shall, nevertheless, treat black amongst colours, as special pigments are employed for its production.

Science has of late years so greatly advanced the manufacture of colours, not only with regard to the chemistry, but also to the practical manufacture and preparation of them, that in place of the painter grinding his own colours as heretofore, both paints and colours are to be procured ready ground in oil by machinery. And dry colours are so finely levigated and reduced to an impalpable powder, that they require no grinding to render them fit for mixing either with oil or water. The number of colours manufactured has likewise increased to so great an extent that shades and hues of colour are now to be purchased ready for use. It is not, however, always possible to procure the exact shade required, as it would be more than the largest establishment could do to keep every shade and

tint ready prepared. We shall, therefore, having described the nature of colours, give directions for the mixing or making of such tints as are commonly required for the purposes of decoration.

Reds: Vermilion.—This is a colour most serviceable for the purposes of decoration. It is a sulphuret of mercury, and exists in a native state, but may also be procured by artificial means. Whether native or artificial, vermilion is a permanent colour. It varies in depth of hue from bright scarlet to deep red, and may be mixed either in oil or water. It is not affected by acids or caustic alkalis. If pure it may be vaporised by a red heat. The best vermilion is considered to be the native vermilion, brought from China. This colour is valuable, and subject to much adulteration. Sometimes vermilion consisting of more than half adulterant matter is offered for sale, and may be purchased for less than one-half the price of the genuine colour. When the spurious article is sold at a rate below that at which the genuine commodity can be obtained, the heinousness of the fraud is mitigated. But so difficult is it to distinguish the spurious from the genuine, that without some clear sign as a proportionate lowness of price for the spurious article, the buyer might be easily taken in. It cannot be expected that any spurious or adulterated article should prove of permanent colour. This colour answers well for the mixing of pink, which will be spoken of under that head.

Indian Red.—Real Indian red we believe to be purple ochre, a native production brought from Ormus, imitated by calcining a mixture of colcothar and red ochre. What is commonly known by this name is, however, a peroxide of iron. It is a good, sound, substantial, and durable colour; a rich, deep red, slightly inclining to purple, and a thoroughly permanent colour. Like vermilion, it is subject to much adulteration, under which circumstances the colour is not permanent. It is found a very useful red to use alone, and invaluable in the imitation of several red marbles. This colour is especially useful for mixing purposes. With white it forms several shades of lake colour, of very subdued and charming appearance, suitable for walls or large surfaces, which harmonise well with other colours, and which cannot be produced by the agency of any other colour. With black or blue it furnishes greys and chocolates, which we shall speak of under those heads. It is most invaluable, too, in neutralising greens, which of themselves are too bright for the purposes of decoration, especially of any large surfaces.

Venetian Red.—This is a less valuable colour, properly an ochre, brought from Italy. It is, however, commonly compounded of the natural product which abounds on the Mendip Hills. It is much used in the mixing of common colours, and is employed as well as burnt Oxford ochre in forming a ground for the imitation of mahogany, and other reddish-coloured woods.

Light Red, or Burnt Oxford Ochre.—A sound, useful, and durable colour, formed from yellow ochre by careful calcination. Works well in either oil or water. It produces excellent salmon and flesh colours by admixture with pure white. It is sometimes employed as the ground colour for imitation mahogany, rosewood, and other woods of red or sienna hue. All the ochres, whether red or yellow, are darkened by being subjected to heat.

Lakes and Madders.—None of the lakes are of much service in decoration. The madder lakes, rich and beautiful colours, may be considered permanent, although looked upon with suspicion by some, by reason of their being vegetable dyes on earthy bases. They are indispensable in the painting of flowers, birds, &c., while unavailable for most purposes on account of their costliness. They are the only permanent transparent reds we have. The other lakes, viz., crimson lake, purple lake, and Victoria lake, are comparatively worthless, on account of their non-permanency. The last-named (Victoria lake)

is transparent, of deep, rich colour, and unequalled in its usefulness in graining, in the imitation of mahogany and other reddish-coloured woods. The other two (crimson lake and purple lake), were it not for their non-permanent or evanescent nature, would be most serviceable in the formation of certain tints, but for this reason other colours, though inferior, are used by the decorator in preference. The madder lakes are termed rose madder, purple madder, and orange madder. The rose madder varies from pink to the deepest rose colour. It is a beautiful colour, as near as possible approaching the lovely colour of the rose. Where expense is no object, beautiful and valuable tints may be produced in decorative painting by its agency, as well as glazing, in the painting of flowers and ornaments. Purple madder—a rich, deep purple, extremely transparent—is very serviceable in effecting beautiful purple tints, and for glazing purposes. The same may be said as near as possible for orange madder.

ODDS AND ENDS.

Lime-juice Lemonade.—Add a pint of lime-juice to three quarts of water, and dissolve in it about a pound of loaf-sugar.

A Cheap Dish.—Boil a pound of Scotch barley in a gallon of water until the liquid is boiled down to half, and flavour it with spice and sugar. Sometimes this dish is prepared with equal parts of barley and rice.

Hint about Churning.—Sometimes considerable difficulty is experienced in churning the cream into butter. This may be remedied by the addition of about a tablespoonful of vinegar mixed with a little warm milk.

Treacle Posset.—Mix a tablespoonful of treacle in a cupful of hot milk and water in a saucepan. Place it on the fire, and let it boil quickly, then take it off, let it stand till cool, and strain it.

Blue Ink.—An excellent blue ink may be prepared by dissolving thirty parts of pure Prussian blue in a solution of four parts of oxalic acid, and one thousand of water.

Ink for Writing on Metal.—Boil powdered sulphide of antimony in strong solution of caustic potash, and filter it through white blotting-paper. Writing done with this ink on copper or silver is black, and very durable. It may also be employed for tin, lead, and zinc, but the characters are less durable. As this liquid does not act on iron, steel pens may be used for writing with it.

Aluminium Gold.—This alloy, which is now so extensively employed in the manufacture of watches and jewellery, is composed of ten parts aluminium and ninety parts copper in each hundred. It is the colour of gold, takes a high polish, and is very malleable. This alloy is also extremely hard, and possesses a tenacity equal to that of the best steel. The metal aluminium is the chief constituent in alum and in common clay. This metal is not much more than two and a half times as heavy as water, and it is about four times lighter than silver, which it greatly resembles in colour and lustre. When silver is alloyed with a small preparation of this metal it obtains the property of not being tarnished on exposure to the atmosphere.

To Remove Mud Stains from French Merino.—Wipe the stains with water in which a little carbonate of soda has been dissolved.

To Scour Woollen Clothes and Baise.—Dissolve a pint of ox-gall (which may be had from a butcher's for a trifle) in a tubful of rain or soft water, and wash the articles in it without using any soap. When they are thoroughly clean, and all stains are removed, wash them several times in clean water, until the smell of the ox-gall is completely removed. They should then be mangled, and allowed to remain in the mangle all night, after which they will look new.

EMBROIDERY.

II.

Of all the stitches used in embroidery, the long stitch is that in most general use, and all shaded work should be done in it. In the somewhat fashionable "Breton work," however, shaded forms are filled in with short stitches taken promiscuously, instead of long stitch. In using it, all stitches should be taken from the outside edge of the figure, and worked towards the centre. In a figure of equal sides, the first stitch should be taken from the very centre of the edge, and the work be proceeded with from first one and then the other side of this stitch. In working leaves and scrolls, the stitches ought, invariably, to be

causiously; sometimes so arranged as to form a variety of diapers and patterns, as in Figs. 4, 5, 6, and 7. Sometimes, as in Fig. 8, instead of these short stitches passing over every thread, the couching is accomplished by other threads crossing at right angles, and secured by stitches. Twist-stitch is produced by working equal stitches diagonally, one behind the other on an even line, as in Fig. 9. French knots are frequently useful and pretty for forming the centres of flowers and in diapers; they are supposed to be introduced in several of our designs. They are made by first bringing the needle through the material, taking the thread and holding it with the left hand midway between the needle and work, and with the right hand twisting the needle round the

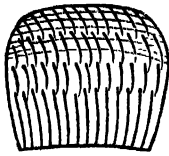


Fig. 1.

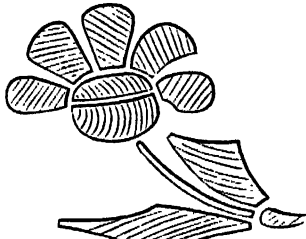


Fig. 2.

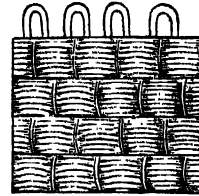


Fig. 3.

taken in a slanting direction. The lighter parts of the leaves are first worked in from the edges, and the darker shades towards the central veins filled in afterwards, the veins themselves being put in last; gold should not be applied till after the silk-work is done. The last thing is to put a neat and careful outline to the leaves. In shaded work, the upper side of the design, upon which the light would be supposed to fall, should be worked in the lightest shade, and the high lights should not be so dark by four degrees as those shades next to them. In leaves, scrolls,

silk in such a manner as to form a loop; this having been slipped down to the point of the needle, the latter can be repassed through the stuff, close to the place where it came through, and while it is drawn down by the right hand, the silk is held by the left, till the loop settles into a knot upon the surface.

Nearly all embroidery is, when circumstances will permit, best worked when stretched in a frame, and lengths which are too great to be stretched at one time, may be put in the frame in successive pieces. The best kind of

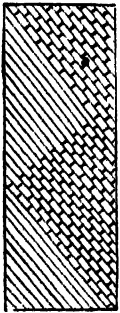


Fig. 5.

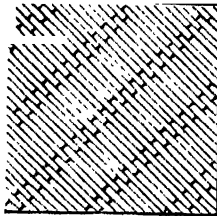


Fig. 6.

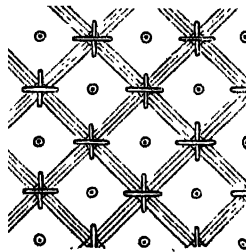


Fig. 7.

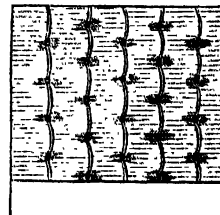


Fig. 8.

or conventional forms, a small number of shades, and those arbitrarily used look best, but more may be introduced with good effect in draperies. In Fig. 1 we give a diagram of shading in long stitch, from the petal of a flower, in old English embroidery. Satin stitch is most useful for making raised leaves, &c., as in the Chinese conventional flower, Fig. 2. The chain stitch, which is an imitation of the old tambour stitch, is formed by carrying the thread at the back of the fabric, catching it through, and laying it along the surface with a fine crochet-hook, which is, under a modern name, the same instrument as the old tambour-needle. Basket-stitch (Fig. 3) is formed by laying any even number of rows of twine, from four upwards, upon the foundation, and securing them there; the silk, &c., is carried over these two at a time. This is useful for borders. Couching was much used in old work. Passing or gold thread is frequently applied in this way, being laid over the ground and secured by short stitches in coloured silk over each single thread. These last are sometimes introduced promis-

frame for canvas is one in which the material is secured by blunt points, attached to the sides and covered with a wooden bar, cut half round, and having a groove, of the same width as the points, running along it; the canvas is stretched and the sides secured by screws. But all other materials would be injured by being fixed by such points, and must, therefore, be secured to the frame by being sewn to webbing. A frame capable of holding a piece of work three feet square is a convenient size, and costs about 10s. 6d. It is better that the frame should exceed the size of the work by some inches, and it is well, to secure a good purchase, that the material should not be sewn to the extreme end of the webbing on either side. The selvage sides of the material should be sewn to the webbing, so as to leave an equal space at either end, with strong, double thread, in stitches of six to the inch, and a piece of tape to secure them, stitched along the woof ends of the material. The frame is then put together, stretched and secured by its pegs, and the woof ends are in their turn secured by sewing through the tape and over the opposite bars with twine

Fig. 9.

In working at the frame, there will, at first, be some difficulty experienced in using the left hand simultaneously with the right, and particularly in bringing up the needle from beneath in the exact spot. The power of doing this can only be attained by perseverance, and the beginner should practice till the needle can be used as well with the one hand as the other. The worker should sit in as upright a position as possible, and the frame should be fixed accordingly; as regards light, a side light is best. In doing long stitch or gold bullion embroidery, both hands are rarely required above the frame; in couching, one hand guides the silk along the material, while the other sews it down, and in applying nearly all edging cords, the hands are occupied in the same way. While working with floss-silk it is necessary to keep the hands smooth, or they will catch it, and it is not well, for the same reason, to wear rings. Perfect cleanliness of the hands is, of course, indispensable.

The implements required are needles, which should be large in proportion to the silk they have to carry, and with large, round eyes; from 7 to 9 are the sizes most in use; the former for sewing-silks, and the latter for crochet and other coarse silks. Nos. 8, 9, and 10 are good sizes for gold bullion. Pins of a small size will be found requisite. As both hands are employed, two plain silver thimbles should be provided, scissors, &c. A stiletto will be required, and a steel piercer rounded and pointed at the end, and then becoming flat-sided, will be useful for regulating gold bullion, passing, pearl-purl, &c.

The embroidery paste, of which we have spoken, is made by adding to three tablespoonfuls of flour as much resin as will lie on a shilling, mixing them smoothly in half a pint of water, stirring them till they boil, and allowing them to boil five minutes, when the paste should be turned out and left till cold.

The silks to be used are, floss, Dacca, Berlin, three-cord, crochet-twist, purse-silk, and seedings. In the best old work, floss is the silk chiefly employed, either in vertical lines kept down by cross rows of fine gold thread, or split fine for flesh and hair; sometimes a thick line of it is used for outlines, while at others, rows of twisted silk sewn down with it are used for that purpose. Dacca is a floss-silk, so made as to be easily divided into two filaments or plies, which can again be subdivided to any extent which is necessary, besides being more easily split than floss. Dacca is made in more shades; the English is best, the French being deficient in softness and brilliancy. Berlin has a smooth, loose twist, and is well adapted for flat masses of colour, as also for scrolls and leaves. Three-cord is a close-twisted silk of three plies, and best simulates gold bullion. The apricot shade is very beautiful, but, as it turns white, the more metallic yellows are to be used in preference. Three-cord is made in other colours than gold, but not in such variety as Dacca, or Berlin; the French is not equal to the English. Crochet-twist is also of three plies, but is coarser and less tightly twisted than the above. It is most valuable for large designs to be used in imitation of gold, and may be either applied in modern embroidery over card, or couched, either single or double, by stitches of purse-silk, or it may be used as a substitute for cord in edging *appliqué*. Purse-silks are of three sizes—coarse, medium, and fine. The first is used in places where three-cord would be too clumsy; the second when a strong, even, and tolerably fine silk is needed; the third for such purposes as couching crochet-silk on an even surface. In sewing-silk there is only one first-class quality, which should always be used (drapers' silk on reels is valueless), and the best is bought in hanks, of from half an ounce to an ounce. Passing—that is, gold thread—should be couched with sewing-silk.

Where twist-silk is being used, it is not possible to fill gaps with extra stitches, as in using floss; every stitch

must, therefore, be laid with regularity, the piercer being constantly used to keep it in place; care should be taken that the stitches are of uniform tightness, and a needleful should never be gone on with when the silk dulls or strains, but another should be taken at once. A large-eyed needle should be used, and never too great a length of silk—twenty-seven inches is a very good length for a needleful.

Pearl-purl is gold cord, which resembles a close string of beads, and is used for edging bullion embroidery; it should be sewn down with single silk, previously waxed, and the stitches concealed. Spangles are frequently useful for enriching embroidery; they are made both flat and concave, the latter have the best effect. Passing is a bright, smooth thread, formed by silver-gilt wire spun round yellow silk. Generally speaking, it should not be pulled through the material, but should be couched and sewn down with coloured silk.

At the present day, an important employment for the various kinds of embroidery we have described, is the decoration of church furniture; for which, indeed, such methods of work are alone properly applicable. The number of domestic purposes to which, also, it is now growing fashionable to apply them, is very large, some of the most favourite being, as borders for curtains and tablecloths, as hangings for mantelpieces, and, in narrow strips, to be affixed to various articles of furniture.

SPECIAL PREPARATION OF MEAT FOR INVALIDS AND AGED PERSONS.

IT often occurs, where the sustaining and re-invigorating qualities of meat are of the greatest importance, that the state of the individual prevents it being masticated, or if not entirely so, yet so small a portion can only be taken as to be quite inadequate, while the very continuance of life itself may depend on a sufficient supply. Beef tea and mutton broth by no means meet the case, as they contain too much liquid—a very injurious thing where there is great weakness, especially if the lungs or heart be affected; and they contain only some of the properties of the meat. The way of preparing meat now described is of the greatest value, and if widely known, might be the means of saving and prolonging hundreds of lives. Any description of flesh may be used—beef, mutton, fowl, game, indeed, whatever kind be desirable by way of change or to tempt appetite. But the kind here selected for description is mutton, perhaps almost the very best that can be used for invalids and weak stomachs. In using other kinds, care must be taken strictly to follow the same directions. Any parts of mutton will do, the best being the lean of chops or slices off the leg. All fat must be removed, all pieces of skin, and the fibres of sinew entirely. In slices, about half an inch, or at most three-quarters thick, the meat must be placed on a plate, each lying flat on its surface, not upon each other, adding two or three teaspoonfuls of water. Another plate or saucer is to be placed over, which must fit close, so as to keep in the steam. It is to be placed in an oven of only moderate heat, and to be cooked for five or six hours; longer will not hurt, if well covered over. A great deal depends on the proper degree of heat. If not sufficient, it will not become tender; if too much, it will become hard and quite spoilt for the purpose intended. A little experience soon tells about the proper degree of heat to be used, and the fittest distance from the fire side of the oven in each case. The bottom of the oven will generally be too hot. When properly done, the meat will be very tender and full of juice, and in some cases might be eaten as it then is. Mutton chops so prepared are exceedingly good for both the healthy and the sick and aged.

A board must be procured, about two or three feet in length, twelve or fourteen inches wide, and three-quarters or one inch thick, so as not to become warped, as it is essential it should be perfectly flat; also another piece, about one and a half or two inches thick, and three or four inches broad. The length must be sufficient for it to project beyond the sides of the other board, long enough for the hands to take freely hold of on each side. This is the proper form of the meat-board and rubber, but in their absence a makeshift may be made of the ordinary paste-board and roller. The prepared meat is to be cut in the thinnest possible slices, placed on the board, and to be rubbed with the rubber until it is reduced to a fine creamy pulp. If needful, a very little of the liquor from the plate or warm water may be added, to assist in reducing it to pulp. A little practice makes this an easy operation, *but it must be done thoroughly*. No bits or stringy portions must be allowed in it: any such that will not pulp must be picked out. When properly done, it is one of the finest and most efficient articles for the sick, weakly, and aged. It will be a perfectly smooth paste.

It is now ready, and may be used in three or four ways, according to choice and for variety. It may be eaten with vegetables, like ordinary meat, the difference being, it will require no chewing, and will melt in the mouth; or it may be placed between slices of bread and butter, as a sandwich. But the special way, of greatest service in cases of extreme weakness and difficulty in taking food, is to mix it with a liquid about the thickness of cream, more so or less, as each case may require. This may be done with the juice in which the meat was cooked, or warm water. Great care must be taken not to have the water too hot, or the meat will at once coagulate and fall to the bottom. Some very finely powdered bread-crumbs may be put into it immediately before it is used, but must not be kept in it. Salt moderately, with pepper and spices or not, as chosen, but very moderately. Prepared thus, it can with a teaspoon be given to or taken by the feeblest invalid with perfect ease, and a large amount of meat may thus be taken as may be considered judicious with hardly any effort. It will be found to meet with the highest approval of the medical attendants, and be a great boon to those who have under their care invalids lying in a state of great exhaustion, whose lives, it may be, are trembling in the balance. When needed daily, sufficient meat should be always kept ready prepared for rubbing into pulp, so as not to keep the invalid waiting.

COOKERY.—LXXXIX.

FRENCH DISHES, ETC. (continued from p. 295).

Chapon au Riz (Capon with Rice).—Cook a capon à la braise (as directed on page 311 of this volume), and when it is done, take it out and keep it in a warm place. Strain the contents of the stewpan, and add a quarter of a pound of rice, previously steeped in stock broth, and allow the whole to simmer for a quarter of an hour. Colour with burnt sugar, and serve with the capon.

Hachis de Chapon (Hashed Capon).—Cut off the flesh of a roasted capon, take away the sinews, mince it small, and mix it with a twentieth part of crushed roast chestnuts. Boil the bones of the capon in water, and pour the strained jelly into a stewpan, together with a *roux* of flour and butter. Simmer them a little, and season with pepper and nutmeg. Thicken the sauce with some eggs beaten up, and, having added the minced capon, serve immediately.

Chapon à la Béchamel.—Dismember a roasted capon, and cut the flesh in strips. Then prepare some béchamel, and when it has been boiled to the proper consistence,

put in it the pieces of capon, and squeeze over it the juice of a lemon.

Chapon Farci à la Crème (Roast Capon with Cream Stuffing).—Remove the inside from a roast capon, and chop up the flesh as fine as possible. Then boil a large handful of bread-crumbs in some milk or cream, and mix the minced pieces of capon with it, together with six ounces of beef-suet chopped up, some parsley, chives, and mushrooms, cut small and fried in butter, and the yolks of four eggs. Season with salt, pepper, and spice, and stuff the inside of the capon with them. Coat it with white of egg, and cover it with bread-crumbs. Put the capon in a pan on some hot cinders, and place over it a hot cover to brown it, and cook the stuffing. This dish requires to be served with *sauce piquante*.

Capon en Mayonnaise.—Having cut a roast fowl in pieces, steep it in a mixture of oil, vinegar, salt, pepper, chervil, tarragon, and pimperl. Arrange the pieces of fowl in a dish, and surround them with hard-boiled eggs, anchovies, young cucumbers, and capers, chopped up together. Then pour over them a *mayonnaise*, and send to table.

Chapon à la Nantaise (Capon Dressed in the Nantaise Way).—Prepare some stuffing with the liver of the capon, a dozen roasted chestnuts, some butter, parsley, chives, the yolks of two eggs, salt, pepper, and nutmeg. Fill the inside of the capon with this stuffing, surround it with oiled paper, and roast it. When the capon is sufficiently done, cover it with the yolks of some raw eggs beaten up in melted butter, coat it with bread-crumbs, and brown it under a hot cover. Capons cooked in this manner should be sent to table with some *sauce piquante*.

VEGETABLES.

Haricots Blancs au Roux.—Prepare some *roux*, and fry a few sliced onions in it. Then pour over the onions some of the liquor in which haricots have been boiled. Add to them some salt, pepper, parsley, chives, bay-leaves, and thyme, and simmer the whole until the onions are cooked, then put in with them the haricots, previously dressed in salt and water.

Haricots au Jus (Kidney Beans with Gravy).—Make some *roux*, and mix some gravy with it, seasoned with salt, pepper, and nutmeg, and cook the beans in it.

Haricots Verts (French Beans).—Boil the French beans in salt and water. Then put into a saucepan some butter thickened with flour, together with chives, parsley, thyme, and bay-leaves, chopped small. When the butter is melted add the French beans, and afterwards some stock broth seasoned with salt and pepper. Then boil down the liquor to the consistence of sauce, thicken it with two raw eggs beaten up with milk or cream, and serve it immediately. A little lemon-juice may also be added, and if preferred, the eggs may be replaced by gravy or *jus*.

Haricots Verts à la Maître d'Hôtel.—Cook the French beans in salt and water, drain them, and while still hot, put some butter on them seasoned with herbs, salt, and pepper, and mix them well together.

Haricots Verts à la Provincial (French Beans Dressed in the Provincial Manner).—Cook some sliced onions in a few spoonfuls of oil, until they begin to turn brown, then add to them the French beans, boiled in salt and water, together with parsley, chives, thyme, and bay-leaves. When the vegetables are sufficiently done put them on a dish, and put some vinegar into the saucepan, and when it boils pour it over the French beans. If the taste of the oil is disliked, French beans may be dressed in another manner. Fry the onions in *roux* until they become brown, add some gravy or *jus*, and also the French beans. Let them remain on the fire for a few minutes, and then send them to table, a little vinegar or juice of a lemon being also added, if thought advisable.

Topinambour (Jerusalem Artichoke).—This vegetable may be employed instead of artichokes in the preparation of *ragouts*, the taste of which it somewhat resembles. But when so employed it must not be added until the last, owing to the readiness with which it becomes cooked.

Topinambours Frits (Jerusalem Artichokes Fried).—Cut the vegetable in slices, and cover them with *pâte à frire*, and fry them until they turn brown. Then sprinkle them with a small quantity of salt, and send to table.

Betteraves (Beetroots) are cooked in the manner directed for carrots. This vegetable is also often pickled in vinegar, as a garnish to salads.

Celeri au Jus (Celery with Jus).—Trim some stalks of celery, and after removing the outside leaves, cut them all of the same length, and blanch them. Then fry them in *roux*, afterwards pour over them some stock broth, seasoned with salt, pepper, and grated nutmeg, and simmer the celery for a short time. When cooked, thicken the liquor with some spoonfuls of *jus*, or some good gravy.

Celeri Frit (Fried Celery).—Blanch some celery, cook it in stock broth, drain it, and having dipped it in *pâte à frire*, fry it until it becomes brown.

Asperges (Asparagus).—These vegetables require to be boiled for fifteen or twenty minutes. Care is required not to boil them for too long a period, otherwise they will become too soft. It is also necessary to spread them out on the dish when removed from the water, that they may cool as quickly as possible, otherwise the heat they contain will render them too soft. Asparagus are eaten with *sauce blanche*, or with *sauce faite de beurre*. Sometimes they are served cold, with salad oil.

Pointes d'Asperges en Petits Pois (The Heads of Asparagus Served like Green Peas).—Cut the heads into small pieces, and blanch them in salt and water, remembering to employ cold water for this purpose, to preserve their colour. Then drain them, and cook them in the manner directed for *petits pois à la bourgeoise*.

Concombres Farcis (Cucumbers Stuffed).—Peel a cucumber, and remove with a sharp knife a piece from one of the sides. Then take out the seeds, and fill the space with *farce cuite*. Now line the bottom of a saucepan with slices of bacon and pieces of veal, or minced veal, if preferred. Place the cucumber in it, and cover it with more bacon, together with some carrots and onions cut in slices, some bay-leaves, pepper, and grated nutmeg. Pour some stock broth over them, and let them simmer at a gentle heat, until the cucumber feels soft when touched, and then remove it, and keep it hot. Strain the gravy, thicken it with *jus*, or with butter and flour, and pour it over the cucumber.

Concombres à la Crème (Cucumbers with Cream).—Peel some cucumbers, divide them in two, take out the seeds, and afterwards cut them into square pieces. Blanch them until tender, and dry them in a cloth. Then put into a saucepan some butter with half a spoonful of flour, together with some salt, pepper, and grated nutmeg. Mix them well together, add the cream, and when it begins to boil put in the cucumbers, and make them hot without boiling them.

Concombres au Gras (Cucumbers with Meat Gravy).—Peel and blanch some cucumbers as previously directed, then dry them as much as possible in a folded cloth. Cook them in a *roux* until they turn brown, and pour over them some *jus*, gravy, or stock broth—if the latter is used some flour must be added—and season them with salt, pepper, and grated nutmeg. When the cucumbers are ready, remove them from the saucepan, boil down the gravy to the proper consistence, and pour it over the cucumbers.

Concombres Marins.—Cut some ripe cucumbers into thin slices. Lay them on a dish and sprinkle them with salt and pepper. Then pour off the water that exudes,

dry them on a cloth, put them in a dish, pour some off and vinegar over them, and if necessary, sprinkle them with more salt and pepper.

Giraumont (the Pumpkin).—This vegetable may be cooked in the various ways directed for cucumbers.

Choux à la Crème (Cabbage with Cream).—Boil the cabbages in salt and water, until sufficiently tender, pour off the water, and compress them between two plates. Then chop them up, and fry them in a pan with butter, to which salt, pepper, and grated nutmeg have been added. Afterwards pour some cream over them, and simmer them in it until ready for use.

Choux Farcis (Stuffed Cabbages).—Blanch the inside of some cabbages in hot water for a quarter of an hour. Then put them in cold water, and afterwards squeeze them between two dishes to expel as much of the water as possible. Now cut away the stumps, and fill up the space they occupied with sausage-meat, mixed with roasted chestnuts cut small, or any other stuffing that may be preferred. Cover over the stuffing with cabbage-leaves, and tie them on with string so that it may not escape, and then place the cabbages in a pan on some slices of bacon. Cover the vegetables with more slices of bacon, together with some carrots, some onions into which a few cloves have been inserted, some parsley, chives, bay-leaves, thyme, pepper, and nutmeg grated. Pour over them some stock broth, and simmer them over a slow fire until done. Take out the cabbages, remove the string, lay them on a dish, and strain the gravy over them through a sieve.

Choux au Lard (Cabbage and Bacon).—Cut some cabbages into quarters, blanch them, and lay them in a pan on some slices of bacon, with a piece of pickled pork. Pour over them some stock broth, with pepper, nutmeg, parsley, and chives, but no salt, owing to the quantity contained in the stock broth and bacon. Make the contents of the stewpan boil, and afterwards simmer them at a gentle heat until the cabbages are done. Then take them out, arrange them on a dish, with the pickled pork on top of them, and keep them warm by the fire. Afterwards reduce the gravy in the stewpan, thicken it with a little *jus*, or with flour and butter, and pour it over the vegetables.

Choux à la Lilloise.—Blanch some cabbages, remove the stumps, and chop them up in large pieces. Put them in a pan with butter, onions in each of which two cloves are stuck, together with salt, pepper, and grated nutmeg. Mix the cabbages with the butter, cook them over a slow fire, frequently turning them to prevent their burning. When the vegetables are done, remove the onions, and mix some more butter with the cabbages. Either the red, or the ordinary white cabbage may be dressed in this manner.

Cheucroule (Sour-kROUT).—This preparation of cabbage is cooked in the following manner:—Steep the sour-kROUT in water for two hours, drain them, and put them in a stewpan with bacon cut in thin slices, and some sausages. Put in with some fat gravy, dripping, the juice of roast meat, or the dripping from a goose. If none of these articles is at hand, put more bacon, and use stock broth. Simmer the whole over a slow fire, and when the sour-kROUT is sufficiently done, drain it, and lay it on a dish, with the bacon and sausages on the top.

Choux Rouges (Red Cabbages).—Boil some red cabbages in salt and water, and when they are cooked, remove them from the water, and put them in vinegar, with oil, salt, pepper, and nutmeg.

Épinards à la Maître d'Hôtel.—Blanch the spinach in not water, until it becomes soft, and then throw it in cold water. Take it out, drain it, press out the water it contains, and chop it up in small portions, which are then to be placed in a pan surrounded by boiling water. When the spinach is hot, add to it some butter, together with salt, pepper, and nutmeg, and mix the whole together.

CAGE-BIRDS.—XV.

PARROTS (*continued from p. 249*).

Cockatoos are distinguished from the other groups by their light and uniform colour, which is white generally, or tinged more or less, according to their species, with yellow or red; by their peculiarly-shaped crest, and by their short and even tail. The bill is large and powerful. They feed upon the seeds of various trees and plants, and they are natives not only of Australia, but of the Moluccas, New Guinea, the Philippine, and the Indian Islands, inhabiting the woods. Like others of their congeners, they make their nests in decayed trees, and are easily tamed when taken at an early age. They become familiar and attached, but their imitative powers seldom go beyond a very few words, added to their own peculiar cry of "cockatoo."

The great white cockatoo is about seventeen inches long, of a white colour, with a faint tinge of rose-colour on the head and breast, and of yellow on the inner wing-coverts and tail-feathers; on the head is an ample crest, consisting of feathers five inches long, arching over the whole of the head, which the bird can easily raise or depress; these feathers are white above, but of a scarlet hue beneath. The tail is short in proportion to the size of the body. This bird is sometimes chained to a perch, supported by an upright pole; when the sun shines, and the weather is warm, it can be placed in the open air, and we consider this the best method of keeping these birds. The cockatoos use their bill in ascending and descending, are very active, and hop about nimbly. These birds are not easily taught to speak. The best food for cockatoos is bread soaked in milk, and an occasional change, such as nuts of various kinds, barley, wheat, oats, &c. Pastry is sometimes given, but should be used sparingly.

Lories.—The lories are another group, natives of continental India and its islands. Their principal colours are red and green. Many of them are beautiful; they are more delicate than other parrots, and are not often seen in Europe. The bill is much hooked in the upper mandible, and the lower one is slightly arched in the ridge, but longer than it is deep. It is a smaller bill in proportion than that of a parrot. The tongue of the lories is very different to that of the generality of the

parrots; instead of being full and smooth at the point, it is slender and soft in its consistency. The honey of flowers and the sweet juices of pulpy fruits are the substances upon which the lories feed; the countries which they inhabit abound greatly in such substances. The plumage is soft, excepting on the wings and their coverts, and is therefore less adapted to withstand exposure either in the forest or the air.

One of the most beautiful species is the Papuan lory; it combines rich plumage with elegance of form; the body being scarlet, relieved in parts with green, yellow, and

blue. The two narrow central feathers of the tail measure upwards of eleven inches, exceeding the rest of the body; the lateral feathers are regularly graduated, as in other lories. The bill is red. The elongated feathers are pale green, towards the tips a pale yellow; the lateral have their basal dark green, and the remainder yellow. This bird is a native of Papua, and other parts of New Guinea. There are several other kinds—Swainson's, Maiden, Blue-striped, Dappled, and Purple-capped.

Parrakeets.—The term parrakeet is usually applied to the smaller species of these beautiful birds. We give the names of the various kinds best known:—the Cardinal, Blossom-headed, Rose-headed, Bornean, Two-spotted, Rose-ringed, Lunated, Long-tailed Green, Red and Blue-headed, Pivonane, Australian ground (or budgerigar). These are slender and elegantly proportioned birds, with long, pointed tails. Several of them are distinguished by rings round the neck, and those are mostly Asiatic and African birds.

Toucans.—These birds are distinguished

by their enormous bills, which are convex above, and much hooked towards the point. In their wild state at times they eat the eggs of other birds; also insects, fruits, and the tender buds of plants. There are three kinds, the Preacher, Yellow-breasted, and Brazilian.

It was for a long time supposed that parrots and macaws would only breed in their native country. This notion, however, has been disproved, the young of both birds having been successfully reared. As, however, few persons keep a pair of parrots, the opportunities for observation in this respect are limited.

Besides their remarkable capacity for imitating sounds, parrots will learn various amusing tricks. They will lie down on their backs and rise at command, and dance in a grotesque fashion when bid to do so. That they attach



THE CRESTED COCKATOO.

a meaning to certain sounds is unquestionable; but that power they share with nearly all domestic animals, which know their own names and, to a limited extent, obey directions. But among birds the parrot is pre-eminent for its capacity of reproducing the tones of the human voice, and its vocabulary is far more extensive than that of the raven, starling, or other "speaking" birds, while the remarkable appropriateness with which it will sometimes apply its stock of acquired phrases would almost lead to the belief that it attaches a meaning to the words. Parrots exhibit a very acute appreciation of kindness, or the reverse, and take very little pains to conceal their aversion to those who tease or ill-treat them. It has been stated that the male birds prefer women to men, while the reverse is the case with the females. There is, however, no ground for the assertion.

In the previous article we mentioned the usual prices for some parrots asked by the dealers. We now append some additional information on the subject:—The Rose-hill and Pennant's Parakeets, from 25s. to 60s. Blossom-headed or Ring-necked Bengal Parakeets, from £1 to £2 each. Ground Parakeets, £3 per pair. Grass Parakeets, many-coloured, £3. Grass Budgerigars, from 10s. to 30s. per pair. Turquoise Parakeets, from 40s. to 60s. per pair. Cockateels, £2 per pair. Red-rumped Parakeets, from £2 to £3 per pair. African Love Birds (Swinder's), 25s. Brazilian green ditto, £1.

SOCIETY.—XII.

EVENING ENTERTAINMENTS: PRIVATE CONCERTS, MUSIC PARTIES, ETC.

IN proportion as musical knowledge extends throughout England, vocal and instrumental performances gain favour as amusements for evening parties. Amongst the higher classes of society music has always been considered one of the most refined modes of entertainment for invited guests, and almost fabulous sums have at times been paid to secure the services of *artistes* of renown at private concerts. Indeed, the expensiveness of such entertainments has been the great drawback to their more general adoption.

The musical amateurs of England are not now confined to one section of society. The family circle of most households must indeed be backward in modern attainments if one member, at least, is not a creditable performer on some instrument, or, more commonly still, a tolerably good vocalist. Thus, with abundant means on all sides, there need be no difficulty in bringing people together in the common cause of doing honour to the art they love, and, at the same time, conferring pleasure on their audience. To be enjoyable, however, the arrangements for a music party should be as carefully studied as those for a more elaborate kind of reception.

Firstly, with regard to private concerts for which professional assistance is secured. The usual plan is to place all matters connected with the engagement of the *artistes* and the making of the programme in the hands of a member of the musical profession accustomed to similar undertakings. Most professors of music of standing are competent to discharge the task; and, in enlisting such aid, the host will find that he has incurred very slight additional expense, and has been relieved from a large amount of anxiety. Concert-givers, who are unacquainted with the nice distinctions of artistic rank, had better leave the marshalling of such forces to experienced leaders, who, knowing the rightful position that each is entitled to claim in a programme, is absolute in his function of conductor.

Whenever a professional conductor is engaged for a private concert, he takes all responsibility off the hands of the intending host or hostess. He ascertains the amount the concert-giver intends to expend, and submits a list of

performers whose talent may be secured for the sum stated. On the evening of performance, or within a few days after the concert has taken place, the conductor pays the *artistes*.

The arrangement of the programme is also the conductor's business. Most people leave professional performers to select their own music; and it is policy to do so, as they know the music best suited to their own powers better than strangers can dictate.

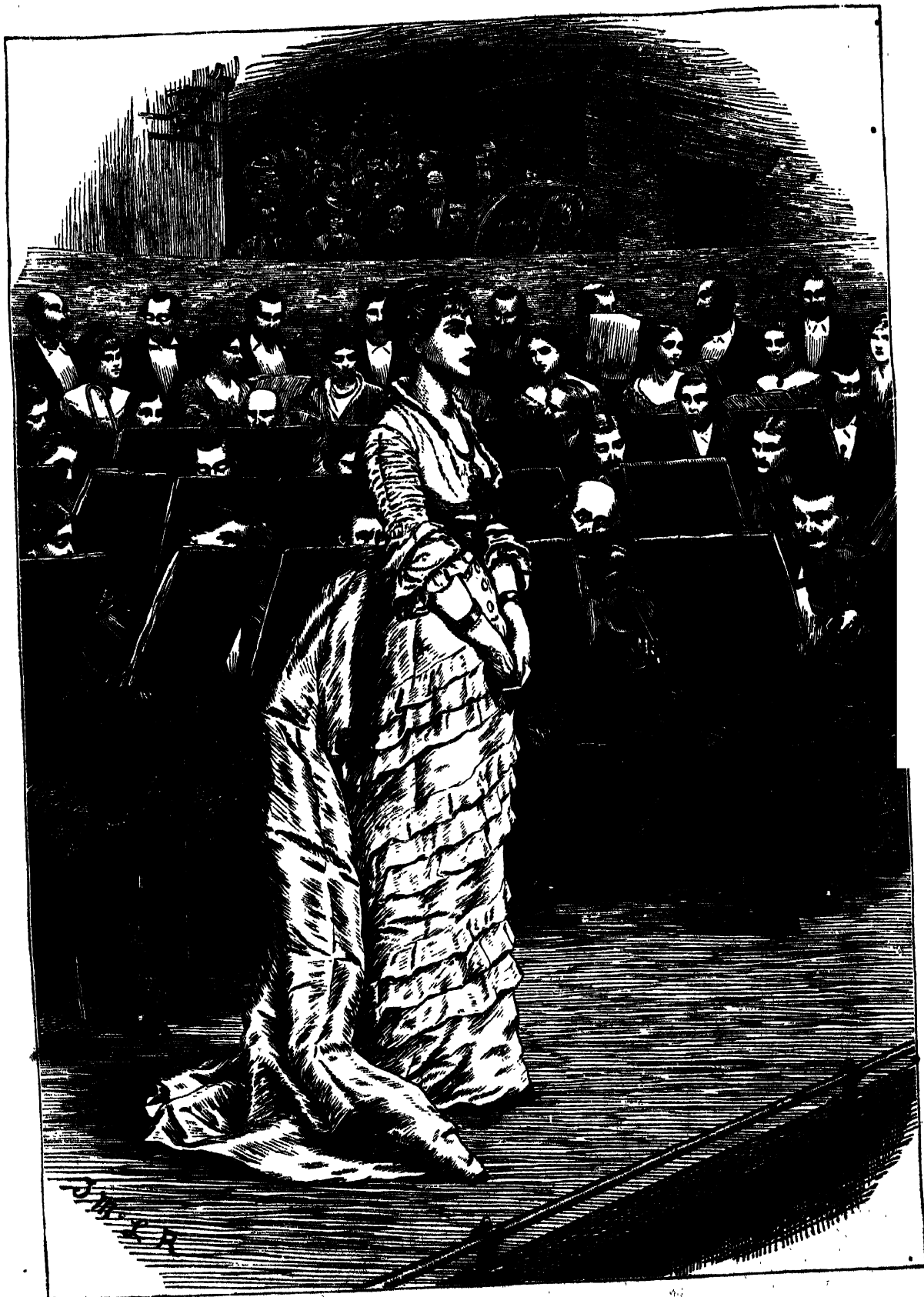
As a general rule, what is termed chamber music is best suited for drawing-room audiences. Charming glees, ballads, duets, and trios, in endless numbers, constitute the *répertoire* of successful public performers; and from the list that each performer presents to the conductor it is easy to make a good selection. The next preliminary arrangement is to procure the words of the songs—provided it be intended to print the words. The *artistes* supply the conductor with the words for the programme, and he corrects the printer's proofs.

On the evening of performance the conductor should be the first member of the professional party to arrive at the residence of the concert-giver. If it should happen that the performers are not personally known to the host or hostess, it is the conductor's duty to present them. Seats are generally arranged for the *artistes* near the pianoforte, in order that the company may not be disturbed, and unnecessary delays occasioned by passing to and fro during the concert. The *artistes* mingle with the general company when the concert is over, and partake of supper or not as they may feel disposed. At the termination of the concert the conductor's duty towards the *artistes* is at an end, and the host and hostess act towards them as towards other guests. It is a compliment to ask *artistes* to partake of any amusements that may follow on the termination of the concert. If the company disperses immediately afterwards, the latter duty is obviously unnecessary.

The above are the rules generally observed at formal concerts given at private houses. Amateur performances of music require a little modification.

Here it is not out of place to comment on the character of entertainments in which music forms a part, and not the whole of the evening's amusement. If people are invited to a musical entertainment, they naturally expect that order will be observed in the arrangements. Nothing is more disappointing than to find that the music is of a haphazard description, and that the performances are dependent on the whim of the moment that may happen to influence the expected performers. All the considerations as to whether an amateur friend will sing or play or not should be settled between the hostess and the amateur before the company is assembled; the exhibition of a hostess going from one member of the company to another, asking in vain for the assistance which their talent would afford, is, to say the least of it, far from edifying. The example of one person refusing is quite sufficient in itself to induce others to decline, and it is not until some good-natured person, not the most capable, perchance, of acquitting himself creditably, goes to the piano and breaks through the ice, that the chill is taken off the assembly.

If people determine to make music the principal feature in an evening entertainment, and announce the party as a music-party, they should be at the same pains to secure success as they take to make balls or dinner-parties successful. A great deal of the discomfort experienced at evening parties where music is a principal feature arises from the nondescript nature of the preceding arrangements. A large number of persons are brought together, the majority capable probably, as amateurs, of adding to the amusements provided for the company, but unprovided with music, from not having been previously asked to assist. Unless this condition be



AN EVENING CONCERT.

(To face page 327, Vol. IV.)

complied with, none except those upon most intimate terms with the host or hostess would venture to take music, or musical instruments to a party. It would look too much like wishing to perform, they argue; and, rather than appear obtrusive of their talent, they prefer making its display an impossibility.

Nor is the nondescript nature of the parties alluded to unsatisfactory to amateur performers only. The guests, not knowing what the order of the evening is to be, betake themselves for amusement according to the bent of their inclination. Some look at engravings, others talk—very loudly sometimes—and pay no deference whatever to the occasional exertions of a performer to be heard above buzz and laughter going on in all parts of the room. The *talkers*, having once gained the ascendancy, no amount of frowns and hushings on the part of the hostess can quell their loquacity. Every one can talk, or thinks he can talk; consequently, restraint seems like trenching on personal independence, and is liable to be resisted, even in what is emphatically termed good society. In nine cases out of ten, evening parties of the latter kind are a great disappointment, and a serious annoyance to every one. The hostess is vexed because her amateur friends will not oblige her by singing or playing; those who do perform are displeased because their efforts to amuse are not welcomed; and the talkers are made angry by being reproved for indulging in conversation. Every one is more or less censured as being ill-mannered, rude, &c. Such wounds rankle.

In fashionable society, where the necessity of receiving large numbers is met by adequately numerous apartments, suites of rooms, galleries, and so forth, all conversation is not restrained when music commences; only those within earshot of the performers are compelled by courtesy to keep silence. In the adjoining rooms conversation has full sway, and although the distant murmur may penetrate to the music-room, listeners are not supposed to be disturbed by it.

It is in houses of smaller dimensions, and amongst persons less accustomed to the habits of society, that the disagreeable complained of abounds, and often render amateur music an annoyance instead of pleasure. There is no denying the fact that amateur musicians at a party are frequently principally attractive to each other. The first plunge having been made, and the chill of nervousness having given place to the love of exercising a fascinating art the amateurs are apt to vie with each other in getting possession of the pianoforte, and singing or playing to their hearts' content. In the meanwhile the host and hostess are liable to mistake their duty towards the majority of the company, by enforcing strict silence upon persons who, perhaps, are but lukewarm admirers of music under the best of circumstances, and especially indifferent to amateur attempts.

The right thing to do is for a host or hostess to indicate his or her wishes as to the character of the entertainment in such a manner as to render a doubtful course of action impossible. In issuing invitations, as we have in a preceding article observed, the character of the entertainment should be plainly indicated. If in the left-hand corner of the card of invitation to an evening party the word "Music," "Cards," or "Dancing," be written, guests should go prepared to take part in such amusements, or fall into the restraints which such pleasures impose on all non-assistants. Thus, if people do not dance, they should decline invitations to balls; if they object to cards, they had better stay away from card-parties; and if they prefer talking to listening to music, they are out of place at a musical party.

On the hostess's part, every accommodation should be provided. For instance, in the rooms appropriated to music, sufficient chairs should be placed in rows to seat the number of guests invited. If the number of invita-

tions issued be more than the room can accommodate, the places nearest the piano or orchestra should be assigned to the earliest arrivals. It is presumable that those guests who are most punctual will be those who care most about music. If any space be left out of hearing of the performers, people may stand about and talk at will, provided their conversation be carried on in a subdued tone. The landings and staircases leading to the music-room afford a fair opportunity for general conversation.

At evening parties at which music is only an occasional feature, greater liberty of action is allowable to the general company. Those who like music generally find places for themselves near the piano; and, except in the immediate neighbourhood of the performers, a hostess should not impose silence on the general company. Good taste dictates to most people that loud remarks and laughter are never more ill-timed than during the performance of music.

With regard to the selection of music for amateur concerts, sacred music is not generally considered appropriate at evening parties. If, however, some be preferred, it is better to confine the selection to one part—the first part—leaving the second part for secular music.

All performances of music are best commenced by either a duet, trio, or some other piece of concerted music; glees are very suitable for opening pieces, likewise for the *finale* of the acts. The best situations in the programme are those which come in the middle of the concert.

At most private concerts the music is given in one part only, followed afterwards by supper or light refreshments. Ices, biscuits, &c., are handed round between the parts, if a division of the concert be made. It is not considered polite, in a private house, to leave before the termination of the concert, unless an interval be allowed for refreshments. Neither should guests enter the room during the performance of music; they should wait till the piece is ended, and time their movements to take their places before the appearance of the next performer.

The rustling of programmes and tapping of fans is the only applause ladies are supposed to bestow. On no account must they say *bravo* to a lady performer. That term, although sometimes indiscriminately used by persons unacquainted with Italian, for expressing their approval of one or many performers, without reference to either numbers or sex, is properly only applicable to a single male performer. Persons who know the Italian language do not commit the error, but observe the following correctness of expression:—*Bravo* is an expression of praise applied to one male performer, *bravi* to several of the masculine gender, or several performers, male and female; *brava* is applicable to a single female performer, and *brave* to two or several females.

The mode of receiving company at music parties is the same as at other evening entertainments. The hostess remains near the door, or at the head of the staircase leading to the principal apartment, till the majority of the guests have arrived. In the absence of a professional conductor, the master of the house, or some one who represents him, is generally appointed to see that the course of the concert is not interrupted by delays or any other avoidable circumstance. Programmes used at amateur concerts are precisely in the form of those at which professional *artistes* assist, with the exception that the names of the amateurs are not usually printed. The name of the piece and of the composer alone are given. The address of the host or hostess, and the date of the concert, are generally printed at the head of the programme.

Guests on alighting should inquire at what hour the carriages are ordered, as in most cases visitors do not return to the drawing-room after supper.

Full dress is worn at evening music parties.

MONOGRAMS AND CYPHERS.

THE employment of monograms in various ways is, in our own times, exceedingly fashionable. Upon an envelope, or upon note-paper, a well-designed monogram forms a graceful ornament; it implies less ostentation than a crest, and is, indeed, according to ancient usage,

†
bined. In the single cypher, the letters occur once only, and in their usual order, while the double or reversed cypher is rendered more symmetrical by the letters being repeated in a reversed order. In the monogram, the characters used are commonly those which belong to some of the more angular alphabets, while in the cypher, the flowing Italian letters are employed. The distinctive

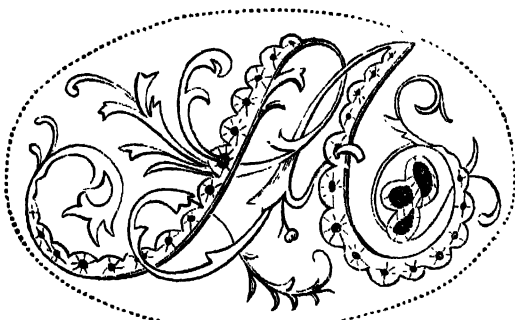
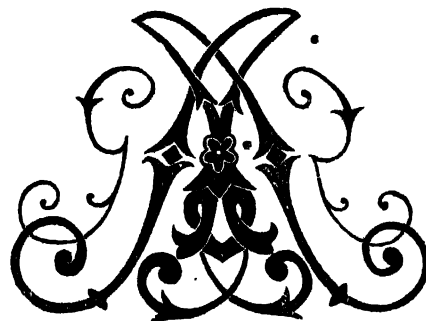


Fig. 6.

9A
Fig. 7.

MAUDE



Fig. 1.

C.O.M.



Fig. 2.

O.H.

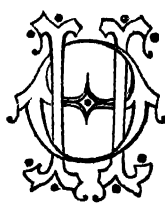


Fig. 3.

S.W.



Fig. 4.

P.A.



Fig. 5.



Fig. 8.



Fig. 9.

the proper distinctive symbol of those who are not, according to the laws of heraldry, entitled to use armorial bearings. Although during the last century, and some part of the present, the monogram was almost superseded by the cypher, it is no modern invention, but its history may be clearly traced backwards for many centuries. A monogram, as its name implies, consists of the initials or letters of a name combined in some fanciful manner, and properly, in such a way as to form, to a certain extent, but a single character. The cypher, on the other hand, consists of the letters merely interlaced, but not com-

characteristics of the monogram may be seen by referring to Fig. 2, and those of the double and single cypher, by referring to Figs. 6 and 8.

The Designing of Monograms and Cyphers.—Although when used for stamping upon paper, and for some other purposes, the designing is by most persons left to the die-sinker, engraver, or printer, there are instances, such as those in which the device is intended to be carried out in embroidery, where no professional aid can be called in, and, indeed, at all times, the arrangement and combination of the letters of one's own name, in some decorative

form, is a pleasing exercise for the taste and ingenuity; it is one that calls for no very great artistic powers, while the laws to be observed in the construction of these devices, are few and simple.

As a monogram is professedly the name or the initials of the name rendered decorative, the first thing to be observed in the device, will be that it shall be symmetrical and pleasing to the eye, so far as is consistent with legibility, and the following points should be borne in mind:—The principal letter which is commonly, though not always, the initial of the surname, should be made most prominent. In most instances this can be done by making it of a larger size. Where such a method is forbidden by the symmetry of the design, the same end can

be accomplished by placing it centrally, or bringing it forward in the interlacing; or, if colour is employed, by making it of some colour which strikes the eye forcibly, as, for instance, of red. The lighter and darker parts should be made to balance as much as possible, in the composition, and although all the letters used should be of one alphabet only, as a mixture of alphabets destroys the consistency of the design, it is allowable sometimes, when found conducive to the harmony and beauty of the work, to take some liberties with the exact forms of the letters, if this can be done without destroying their individual character and significance. The alphabets generally best suited to the purpose, are the different varieties of Gothic and Lombardic characters; that known as "old English" is too confused in combination to be legible, while the "Roman" is too severe and unattractive. Although to some extent a monogram is supposed to be of the nature of an enigma, and, therefore, not necessarily to be read at the first glance, the letters should be so arranged that each may on closer inspection be clearly made out. This constitutes what is called, in technical language, a "perfect monogram," and although this law has not always been regarded by the modern designers, it was invariably observed by the monogrammists of classical and mediæval times. In our illustration (Fig. 1) we have shown an example of monograms embodying the Christian name only, and in which the whole of the letters composing it are introduced. Almost all the shorter female names may be combined into graceful monograms in the same manner, and a device contain-

ing the Christian name only is naturally in favour among young ladies, since no change of monogram is then necessary upon change of name in marriage. It will be seen from these in what way the first and most important letter is given prominence by its size. It will also be seen that more symmetry is frequently to be obtained by reversing a letter, and this will almost invariably be the case when the same letter occurs twice in the same name. We have given, in Figs. 2, 3, 4, and 5, what appear to us good typical combinations of the initials of Christian and surnames, which will help the designer. A moment's reflection will convince the reader that an attempt to give a series of monograms, embodying all the more common combinations alone, would require volumes.

In the cypher, of which the leading characteristic is flow of line, the great points are: the attainment of graceful curves, and the proper filling of a certain boundary line, either real or imaginary, for, when the cypher is not intended to fill a certain fixed space, it is frequently brought into an oval form, as being the most graceful (see Fig. 6). As in the cypher, the letters should occur in their proper order, none of those precautions insisted upon for the purpose of giving prominence to the principal letters in the monogram will be necessary. Certain interlacings and interweavings in cyphers are always good in effect. In designing the double cypher (see Fig. 7), which is a



Fig. 10.

convenient method of gaining symmetry with letters which will not otherwise readily assume a decorative arrangement, the easier method is first to write the letters, then to copy them on tracing-paper, and turning the latter to retrace them on the reverse side, interweaving the two initials of the surname as much as may be desired. This will readily give a general double effect on the tracing-paper, which may afterwards be worked out ornamentally. The double cypher was a fashionable device of the first half of the last century, from which period it has continued in use to our own day for certain purposes, as, for instance, for ornamenting the panels of carriages, &c. The monogram, though freely used in classical times, was much more general throughout the Middle Ages. Charlemagne had a monogram cut through a plate, with which he stencilled his signature upon public documents, and this kind of sign manual was, throughout the ninth, tenth, and eleventh centuries, much in use, not

ing the Christian name only is naturally in favour among young ladies, since no change of monogram is then necessary upon change of name in marriage. It will be seen from these in what way the first and most important letter is given prominence by its size. It will also be seen that more symmetry is frequently to be obtained by reversing a letter, and this will almost invariably be the case when the same letter occurs twice in the same name. We have given, in Figs. 2, 3, 4, and 5, what appear to us good typical combinations of the initials of Christian and surnames, which will help the designer. A moment's reflection will convince the reader that an attempt to give a series of monograms, embodying all the more common combinations alone, would require volumes.

only among kings and nobles, who were unacquainted with the art of writing, but even among the more literate clergy. The cypher came to us from the south, following in the track of the revival of ancient arts and letters. The monogram of our own day owes its popularity to the renewed appreciation of mediæval art.

In illuminating or designing coloured monograms, the reader should remember that gold is, except in certain lights, less prominent in effect than positive colour, and should not, therefore, be generally used for the more important letter; indeed, our own advice would be that it should never be used for the actual characters, but only for the ground, when that feature is introduced, as it sometimes is, the letters being enclosed in a quatrefoil, vesica, or shield-shaped figure. For general laws with regard to harmony and contrast in colouring, the reader cannot do better than consult our articles on "Illuminating" (see page 74, vol. iii.).

Embroidered Cyphers.—For application to embroidery, the monogram is not well suited, since it can rarely be worked of so large a size as to be free from the appearance of confusion, neither, except in the hands of a very skilful embroideress, can that neatness of line be given which is essential to this description of device. The cypher is, therefore, usually employed, and may always, by judicious treatment, be made highly effective. One of the most favourite uses of the embroidered cypher, is for marking the corners of pocket-handkerchiefs, and in Fig. 10 we give a design for this purpose, with an ornamental border, which would be equally applicable for enclosing other initials. In Figs. 8 and 9 we show how single letters may be rendered decorative for the same purpose, and by simply transferring with a little alteration the details of these to other characters, it will not be difficult for the embroideress to adapt them to the initials of any name.

The designs given for embroidering handkerchiefs are especially intended to be carried out in white thread only, partly, as the reader will perceive, in raised, and partly in open work; they would, however, be more effective if embroidered in colours, or in gold, black, and white, which are extremely favourite methods of embroidering a handkerchief in some parts of the Continent. If gold is employed, it may be desirable for our readers to be informed that the handkerchief, to avoid injury to the bullion, should, when ironed, be carefully laid between two sheets of blotting-paper.

JEWELLERY.—II.

GILDING OF METALS.

GILDING is the art of applying to the surface of silver and base metals a thin coating of pure gold in such a manner as to resist for a considerable time the effects of wear occasioned through cleaning, rubbing, &c. The process most in favour at the present time is that termed *electro-gilding*, which can be performed upon silver, platinum, tin, copper, and palladium, or, in fact, upon almost every metal, by the use of aurocyanide of potassium. Aurocyanide may be produced by dissolving oxide of gold in a solution of cyanide of potassium. The gold is oxidised by three parts of hydrochloric acid and one of nitric acid. It is then digested with calcined magnesia. Aurocyanide, however, is best prepared by means of the battery. The process is thus:—A piece of pure gold is arranged as the positive pole in a solution of cyanide of potassium; a porous cell, filled with the same liquid, is then placed into the bath, and a sheet of iron or copper is next placed in the cell so as to face the sheet of gold, and then both metals are connected with the battery. In preparing the solution, the liquid must be heated to at least 130° Fahr. The connections being

made, the battery remains in action until the required quantity is dissolved. This is ascertained by weighing from time to time the gold acted upon, and observing how much it has lost. The usual strength of the liquid used in large operations is from one-half to an ounce of gold to the gallon. In gilding small articles a weaker solution is sufficient. The article or metal, previous to receiving the gilt, must in all cases be thoroughly cleansed and perfectly dry; it is then immersed. But the first operation merely imparts a blush of gold; after this, the articles are removed, brushed, and again immersed. Under favourable conditions, any small article will be sufficiently gilt in three or four minutes. The operation is the more rapid in proportion to the heat of the solution, and where this is intense, less battery-power is required. The heat is conveniently applied by putting the jar containing the solution into a vessel of water kept at the boiling point. When the articles are gilt, they are again weighed, in order to ascertain the quantity of gold deposited. When iron, tin, and lead are to be gilt, a slight film of copper is deposited on them previous to their being placed in the auriferous bath. Before silver articles undergo the process, they are merely well brushed, and kept in clean water until immersed.

Upon the strength of the battery and the temperature of the solution depends the colour of the gold deposited. Any desired shade may, therefore, be obtained by attention to the following points. If the solution be too cold and the battery weak, the gilding will be light coloured; if the battery is very powerful, it will be of the darkest hue. On removing the article from the solution, provided the ingredients have been properly regulated, its coating should wear a dark, brownish yellow shade, which will change into a beautiful, rich, deep colour when the metal is scratched.

In re-gilding articles, or when the operation has been imperfectly performed, it is desirable to remove the particles of gold remaining, which may be performed by immersing the articles in strong nitric acid, after which some chloride of sodium is to be added to the acid. The gold may thus be removed from the surface without injuring the metal. When withdrawn, the gold may be recovered by diluting the acid, and introducing soda or potassa until the acid is nearly neutral. After this, and so long as any precipitate falls by standing, a solution of sulphate of iron is added. The precipitate having been filtered, the filter with its contents is dried, after which the precipitate is fused with a little borax. The same results may be produced by using oxalic acid instead of copperas. Should the gold happen to be brushed off in the operation, the washings are fused with borax.

Another process, termed "*wash gilding*," is performed thus:—Apply evenly an amalgam of gold to the metallic surface to be gilt, and dissipate the mercury by heat, so as to leave on the surface a film of pure gold. Ordinary brass is a material which is suitable for operating upon, although the alloy generally preferred is a mixture of copper, nickel, and zinc. These materials may be so proportioned as to assume as nearly as possible the colour of gold. To form the amalgam, a small quantity of gold, reduced to grains or thin plates, is heated in a crucible until it becomes faintly red. It is then added to mercury, also previously heated, till it has begun to emit a visible vapour; the proportion of mercury being usually from six or eight parts to one part of gold. The former is then stirred with an iron rod in order to dissolve the gold; when that is accomplished the crucible is removed from the fire, and the amalgam, when cold, is squeezed in a bag made of chamois leather, until the superfluous mercury is strained off in the true amalgam, which remains; there are about thirty-three parts of gold to fifty-seven of mercury. It forms a yellowish silvery mass, of the consistency of butter.

Previous to the application of the amalgam, the metallic surface should be rubbed with a solution formed by dissolving a hundred parts of mercury in a hundred and ten parts, by weight, of nitric acid. The specific gravity of the acid is 1.33 which is diluted with about twenty-five times its weight of distilled water. By this solution the metal is not only cleansed from any rust or tarnish, but the copper alloy having a stronger affinity for the nitric acid than mercury, the latter is precipitated upon its surface in the same manner as a piece of polished iron precipitates copper from a solution of the sulphate of that metal. The amalgam is now spread evenly over the alloy to be gilt, by means of a brush, and the thin film of mercury already on the metallic surface, causes the amalgam to adhere to it. At times the metal is previously cleaned with sulphuric acid, and the nitrate solution and amalgam are then applied at the same moment. To effect this a gilder's scratch-brush, of fine brass wire, having been dipped into the nitrate of mercury solution, is drawn over a lump of amalgam, placed on the sloping side of an earthen vessel, and is then applied to the surface of the alloy. This process is repeated till the article is coated with the required proportion of gold. Having been bathed in water, and dried, it is next exposed to a fire of glowing charcoal, in order to expel the mercury. No more heat than is just sufficient for this purpose must be applied, and the article must be turned about to expose it equally on all sides. It is withdrawn from the fire from time to time; and while the operator holds it in his left hand (which he protects by a stuffed glove), he spreads the amalgam equally with his right hand by means of a long-haired brush. The article is then returned to the fire, the same operation being repeated till the mercury has entirely volatilised. This is ascertained by the surface becoming of a dull yellow colour, and by the hissing sound produced by a drop of water being placed upon it.

After this the surface is coated with a film of gold, but being still deficient in polish and lustre, it is well washed, and the surface thoroughly rubbed with a scratch-brush in water rendered acid by vinegar. It is then covered with a composition called *gilding-wax*—a mixture of bees-wax, with one or more of the following articles:—Red ochre, verdigris, copper scales, alum, vitriol, and borax. When coated with this composition, it is again exposed to the fire until the wax is burnt off. By this means the gilding is found to be heightened in colour, which probably arises from the complete dissipation of some of the mercury remaining after the former operations. If the article is wrought or chased, a steel burnisher, dipped in acidulated water, is rubbed over the parts to be burnished till a fine metallic lustre is produced. Formerly, this was usually effected by means of hæmatite or blood-stone, which is now generally abandoned in favour of the steel burnisher. The parts intended to be deadened are then coated with a mixture of sea-salt, nitre, and alum, fused in the water of crystallisation of the last-mentioned salt. The article is then heated till the saline crust with which it is covered enters into fusion, and becomes homogeneous, when it is withdrawn and suddenly plunged into cold water, which entirely detaches the crust. Finally it is passed through weak nitric acid, is washed in pure water, and dried.

Gilding by immersion is the method by which copper trinkets and stamped articles are coated with a thin film of gold, which dispenses with the use of mercury, so detrimental to the health of the workmen employed. It was patented in 1836, and has been very extensively practised. In this process the articles to be gilt undergo a thorough cleansing, after which they are immersed in a boiling hot solution of terchloride of gold mixed with a solution of bicarbonate of potassa. The gold adheres to the inferior metal, by reason of a portion of the copper becoming dissolved by the action of the potassa, and a

deposit of an equivalent of gold upon the article takes place. The bath is prepared by dissolving one part of fine gold in aqua regia, and expelling the excess of acid by evaporation. The chloride is dissolved in a small quantity of water. Thirty parts of bicarbonate of potassa are gradually added to this solution. The liquid is then mixed with a solution of thirty parts more of the bicarbonate dissolved in two hundred parts of water, after which it is boiled for two hours. During this operation the bicarbonate of potassa is converted into the sesquicarbonate, and the yellow liquid becomes green. The solution is then ready for use. The trinkets, having been annealed, are cleansed from adhering oxide by a momentary immersion in a mixture of sulphuric and nitric acid in equal parts, to which, when the gold is intended to have a *dead* appearance, a little chloride of sodium is added. The articles are washed in water, and then plunged into the gilding liquid, where they are left for about half a minute; they are then taken out, and washed in water and dried in hot sawdust. This bath may be also employed for gilding on German silver, platinum, or silver. The articles composed of these metals are immersed in the liquid, in contact with wires of copper or of zinc. During the development of this process a remarkable reaction occurs—the gold imparts a portion of its chlorine to the excess of potassa contained in the bath, forming chlorate of potassa; protochloride of gold is formed, and is decomposed by the copper, chloride of copper being produced; whilst metallic gold is deposited upon the surface of the trinkets.

During this operation a black powder is precipitated, containing hydrated carbonate of copper mixed with a small proportion of the purple of Cassius derived from the action of the gilding solution upon the tin contained in the solder of the trinkets.

The operation by which silver is gilded is performed by means of the ashes of a linen rag which has been dipped in a solution of gold and copper in aqua regia, sixty grains of fine gold and twelve of rose-copper being dissolved in two ounces of aqua regia. With this solution a quantity of linen rags sufficient to absorb all the liquid is soaked, and afterwards dried and burned. The ashes then contain the gold in powder. A moistened cork or piece of leather is dipped into this powder, and after the article to be gilt has been well annealed and polished, the ashes are rubbed over it with the cork till the surface appears sufficiently gilded. Large articles are finally burnished with bloodstone, and small ones with steel burnishers, along with soap-water.

General Remarks.—The division of pure gold varies from $\frac{1}{8}$ th of a carat grain (which is valued at 1½d.) to 24 parts (or one ounce), valued at £4 4s. 11½d. For instance, the ounce of gold representing but 16 parts, must necessarily contain 8 parts of alloy, and becomes reduced in value accordingly. The power invested by the Government in the Goldsmiths' Company, previous to the reign of George III., was such as to prevent any but pure gold being manufactured into jewellery and circulated among the public; but since then, the restrictions having been from time to time removed, the market is stocked with articles manufactured in the trade of jewellery, as low as 6-carat gold, or of the value of a trifle over but one guinea per ounce. The removal of this restriction has consequently introduced very inferior gold articles into the market, much to the disadvantage of the purchaser, provided he falls into the hands of unprincipled tradesmen, and be not himself a judge of the metal. Should an alloy of zinc be adopted (which is now frequently the case) in the place of silver, the inferior gold assumes a darker colour, and is apt to appear of some carats higher standard, and to even deceive the practised eye. The metal of this quality not only presents an inferior appearance through wear, but is subject to cracking.

ELEMENTS OF NEEDLEWORK.—II.

GATHERING is shown at Fig. 5. Three threads are taken up on the needle and four are missed, or more, according to the fulness required. Before beginning to gather, the material should be divided into halves and quarters, putting a mark at each division; and the same should be done with the band on to which you gather it. When a quarter is done, draw the gatherings up pretty closely, and secure the thread by twisting it round a pin. Then stroke the Fig. 6 gathers nicely down, one at a time, with a large needle, to make them lie closely and evenly together. Afterwards, untwist the thread from the pin, and loosen the gathers, until you have made the quarter gathered to correspond with the quarter to which it is to be sewn. Fasten the thread again firmly to a pin, and sew the gathers strong'y on, one at a time, letting the stitches take a slanting direction, so as to slip between the gathers.

even, and the needle inserted on the outside, with the point towards the worker. Take the stitches very regularly, so as to draw up evenly.

Marking—which has lately returned to fashion, and bids fair to supersede ink—usually affords great pleasure to children. It is best taught on canvas, and a small canvas sampler should be made for them. But after children have once learnt the stitch, and how to copy a letter, they should be at once set to mark on coarse linen. A very excellent ancient usage is still in vogue in French convents, where the needlework is superb—that of each girl having a sampler of linen, on which all the stitches of every description are shown, and her dexterity in doing each thereon displayed. The greatest pride is taken in them, and the best work, and neatest-looking sampler, brings the owner a prize on leaving school. No hurry is allowed, the object being to supply each girl with a kind of diploma for work.

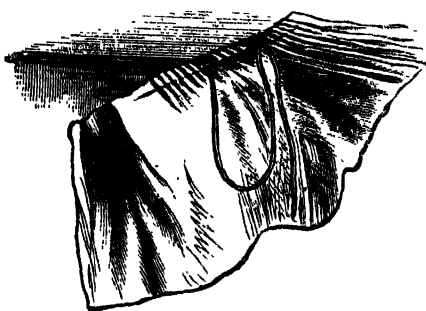


Fig. 5.

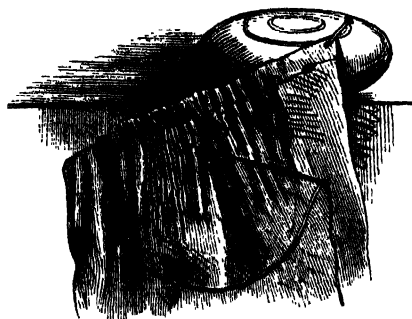


Fig. 6.

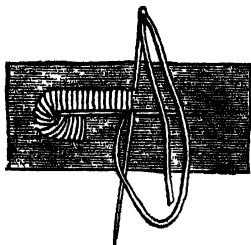


Fig. 8.

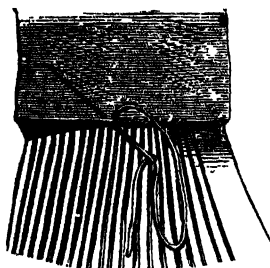


Fig. 7.

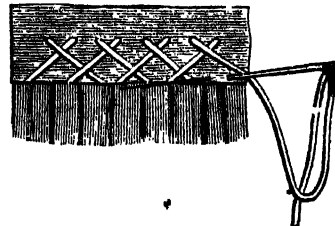


Fig. 9.

(See Fig. 7.) These last three stitches depend on each other, and if one be carelessly and improperly done, the others will also be spoilt.

In making a button-hole, cut the slit even, to a thread, and run it round once, with cotton, drawing it a little tightly. Begin with the left-hand corner. The stitches should have two threads between them, and be most evenly set, being also of the same depth. (See Fig. 8.)

Herring-boning (Fig. 9) is used for flannel more especially, the edge being turned down once only. After running, turn the edge down evenly, cutting off any "fuzz" which looks rough or untidy. Then begin the stitch from the left, towards the right; taking up two or three threads, under the raw turned-down edge; put the needle in half way up the turned-down part, and make another stitch of three threads, then make another stitch under the raw edge, and so on; the stitch produced being like the back-bone of a fish, and hence called herring-bone.

Whipping is used for gathering muslin or other thin materials, and should also be divided into halves and quarters. Roll the edge of the muslin very tightly with the left thumb, upon the finger, at about ten threads from the edge. The cotton for whipping should be strong and

There are several different kinds of darning, but as they may be acquired later on, and are hardly within the scope of the present paper, we shall not go into the subject of them in detail, but merely give instructions for plain darning and patching, which seems naturally to belong to it. The place to be darned should be held across the first and second fingers of the left hand. The needle, to begin, should be pointed from the chest, and the stitches begun before the hole, or thin place, to give a firmer hold to the cotton. Take one thread, and leave one, alternately, till the row is complete. Then cross the stitches, and take up the intermediate threads, which were left before. The cotton must not be drawn tightly, as it shrinks in washing, and a loop is left at each end. There are several rules for taking up the threads, such as, take up one thread and leave two, take up two and leave two, take up two and leave four, &c., some of which form a pattern.

Patches must be put in by the thread, great care being taken not to pucker them. No description would avail to teach the method of putting them on, oral instruction being absolutely needful. In fact, the same may be said of all needlework—a good needlewoman can alone teach the art properly.

COOKERY.—XC.

SCOTCH DISHES (Continued from p. 296).

Hotch-Potch.—This most excellent dish is eaten with indescribable relish by rich and poor alike. It is supposed to be a soup, but it is much more like a stew. Take a full quart of mixed vegetables, perfectly fresh, young, and tender, and another quart, or, better still, three pints of young freshly-shelled green peas. Large beans, blanched and freed from their skins, may be used as well. The mixed vegetables may be made up of young turnips, young onions, lettuces, asparagus points, cauliflower tops, white cabbage, &c., and a little finely-shred parsley should be added to the rest. Throw the mixed vegetables, the beans, and half of the peas, into about four quarts of boiling stock or water, grate in with them the yellow part only of three fine young carrots, and let them boil gently. In half an hour add three pounds of small neat chops, taken either from the loin or the best end of a neck of mutton or the ribs of a lamb. If lamb is used, it should be put in whole, to preserve the juices. Before putting in the meat, trim away all superfluous fat. Skim the gravy carefully, and boil all gently together for an hour and a half; then throw in the rest of the peas, add salt and white pepper, and boil half an hour longer. Serve the cutlets in the tureen with the hotch-potch.

Minced Collops.—Take a piece of tender beef and mince it very finely, leaving out all skin and gristle, and season it with a moderate quantity of pepper and salt. Moisten it thoroughly with water or stock. Brown a little butter in the frying-pan, put in the minced beef, and keep stirring it well to prevent it from running into lumps. In about ten minutes dredge in a little flour, and immediately afterwards add a little boiling stock, made by stewing the skin and gristle; stew it gently a few minutes longer, and serve it at once. Dish the collops with strips of toasted bread round the dish. Sometimes they are seasoned with chopped onion, when they become collops in the pan; spices or herbs, when they are savoury collops; or mushroom ketchup or wine is added to the meat. Pickles or made vinegars are also served with them. Simply minced collops, freshly prepared, are, however, as a rule, preferred to any other kind. They are very digestible, and are convenient, because they can be so quickly cooked.

Fat Brose, Kail Brose, and Pan Kail Brose.—Take a little finely-ground oatmeal and toast it slowly before the fire till it is lightly coloured. Boil an ox head, a sheep's head, or an ox heel, till an almost pure oil floats upon the surface of the stock. Put a handful of the meal, with a little salt, into a bowl, pour a cupful of the fat broth over it, and stir it quickly with the handle of a spoon, so that it shall form knots instead of running into a mass, and serve. *Kail Brose* is made of fat broth in which *kail*—shred greens—have been boiled. *Pan Kail* is made by boiling minced greens in water thickened with oatmeal, seasoning them with salt and pepper, and stirring up with them a good slice of butter or dripping.

Sheep's Head Broth.—To make sheep's head broth, take a fine fat young head and a set of sheep's trotters. (A ram's head is usually considered the best for the purpose, but it needs longer boiling than the head of a wether.) Singe the hairs off carefully. This operation is usually performed by the blacksmith, although it may be done in the kitchen with a red-hot iron, but it is likely to fill the house with an unpleasant smell. Soak the singed head and trotters for a night in lukewarm water. Take them up, remove the glassy part only of the eyes, and scrape and brush them until quite clean, though care must be taken not to destroy the burnt flavour which the singeing is meant to have produced. Split the head, and take out the brains, clean the nostrils and cut away the gristly parts. Then put the brains back again,

and tie the two halves of the head together. Split the trotters also, and take out the tough membrane between the toes, called the "worm." Put all into a stewpan with two gallons of cold water and half a pound of Scotch barley, or, if preferred, the same quantity of dried or fresh green peas. Skim the liquid carefully, and boil the head gently for at least two hours. Throw in a pint of carrots cut into dice, and boil for another hour, when the same quantity of turnips may be added and a few chopped onions, and, last of all, some finely-shred parsley. In summer time, a pint of freshly-shelled green peas will be an improvement. The more slowly the head is boiled the better. It will take from four to six hours, according to the size of the head and the age of the sheep. The soup may be served at once, but the head is best eaten cold. If eaten hot, however, it should have the trotters round it, and be garnished with the carrots and turnips cut into neat slices. The trotters must be eaten hot. They can be served separately, with parsley sauce made of a little of the broth. The soup itself will be improved if the scrag end of a neck of mutton is boiled in it.

Scotch or Barley Broth.—It has been truly said that this broth is to Scotland what the *pot-au-feu* is to France. It is in constant use among Scotch families, and certainly presents one of the most excellent and profitable forms in which food can be prepared. Take from three to six pounds of fresh beef: the shin, or hock, or the thick flank, or any similar piece, will answer excellently. Procure also a tea-cupful of pearl barley, a cabbage, three leeks, one large turnip, one large carrot, and a large breakfast-cupful of dried peas. If fresh peas can be obtained, a larger quantity should be taken, and less barley may be used. When there is any difficulty in procuring the peas they are frequently omitted. If dried peas are used, they must be soaked overnight. Put the barley into a stewpan with cold water, in the proportion of a quart to every pound of beef. Whilst this is heating, prepare the vegetables. Shred the cabbage finely, and cut the leeks and turnips into small dice, and throw them into cold water till they are wanted. Before using, drain them. Cleanse the carrot, then scrape or grate it to pulp, and do not put any cold water upon it after it is grated, as that would cause it to lose its flavour. When the water boils, put into it all the vegetables, with the beef and a little pepper and salt, and simmer the broth very gently till the beef is tender. If the meat is sufficiently cooked before it is needed, it should be taken out for a while and put back in time to heat again. It will need to simmer for about four hours. Particular care should be taken to skim the broth carefully. Serve the beef on a separate dish, and send the broth, with the vegetables and barley, to table in a tureen. If preferred, excellent broth may be made with mutton or lamb instead of with beef, and it will be as good the second day as it is the first.

Porridge.—This is a great Scotch dish. The hardy Highlander is supposed to owe his excellent constitution to the porridge which was so freely administered to him in his youth. To make it, have ready in a saucepan some fast-boiling water, slightly salted. With the left hand, sprinkle gradually into it some Scotch oatmeal, and keep stirring it briskly all the time with a "spurtle" held in the right hand. If any lumps form, draw them to the side of the pan and crush them out. When the porridge is a thick mass, draw the pan back, take out the spurtle, put the lid on the saucepan, and let the mixture simmer gently for one hour. It will be necessary to stir it occasionally, but the lid must each time be put on again. This is to assist the swelling of the meal. Turn it out and serve. Porridge is generally accompanied with milk when milk is to be had; in its absence, butter is sometimes used, sometimes treacle, and sometimes treacle-beer. Whey is sometimes used instead of water for the making of oatmeal-porridge.

THE HOUSEHOLD MECHANIC.—LXIX.

PAINTING (continued from p. 320).

Browns.—There are endless varieties of brown pigments, because every warm colour mixed with black will make a brown. There is, however, no necessity for mixing, as there are so many ready for use of all shades. The principal ones are Vandyke brown, raw and burnt umber, asphaltum, and black japan.

Vandyke brown is a kind of bog earth of a substantial body, and of a fine, deep, transparent brown colour. It is durable both in oil and water colour, but a bad drier in oil; it must, therefore, when used in oil, be forced by adding sugar of lead or other drier, or should be used in varnish or japanner's gold size. It is invaluable, when ground in water, for imitating mahogany, rosewood, maple, walnut, and other woods, both in graining and glazing.

Raw umber is very useful for general work, and is of a deep yellowish-brown colour. Turkey umber is the best and richest for making oil and water graining colours for oak and other woods, and in mixing stone-colours. It becomes, when burnt, of a dark-brown hue, almost as deep as vandyke brown, but slightly reddish in tone. With white, both in oil and water, it mixes well; and the addition of a little black produces many warm, rich tones of stone-colour and drabs. It is very useful as a graining colour in oil for dark oak. Many shades of good warm brown colour, and which may be varied by adding black and red, may be produced by burnt umber and Brunswick green. Black japan is principally made from asphaltum, and is a very rich brown varnish. Asphaltum, though a valuable brown, is a bad drier, and faulty in other ways; therefore the use of black japan, which is a good and quick drier, is preferable. The latter may also be used for many purposes as a black, as it becomes a glossy jet black when sufficient body is laid on. It merely requires thinning down with turpentine to the depth of stain required, when it is to be laid on the work with an ordinary paint-brush, care being taken to lay it as even in colour as possible, after which the work will only require to be varnished in the usual way. Two coats of the stain will produce a dark colour, if required. The use of size, which is always objectionable (it being liable to crack the work, and sometimes to peel off), is avoided by this system.

Blacks.—There are numerous blacks—blue-black, ivory-black, lamp-black, vegetable black, besides a black of French manufacture, recently patented. The latter has the advantage of not requiring to be ground, but may be mixed from the powder with boiled oil. Its colour is jet-black, and as it dries well without the addition of driers: it will be found very serviceable. So also will blue-black, in staining whitening for whitening ceilings, and for use as a graining colour in imitation of rosewood, walnut, and other descriptions of wood. Drop black is also of great service either in oil or water colour. It is a jet black, and is best used when ground in turpentine, with the addition of a little japanner's gold size in just sufficient quantity to bind it. Lamp-black is employed for common painting; and ivory and vegetable blacks are used for many purposes, though not so generally as the other blacks.

Blues.—There are also various blues. The principal kind is ultramarine, which is infinitely superior to any other in purity of colour, readiness in combination, and qualities of general utility. Real ultramarine is made from *lapis lazuli*. It is a permanent colour, and though liable to be destroyed immediately by acids, is indestructible by time or fire. This beautiful pigment is obtained from blue mineral azure stone, lazulite, or *lapis lazuli*, the finest specimens of which are brought from China, Persia, and Great Bucharia. Real ultramarine is prepared from pure *lapis lazuli*, reduced to fragments about the size of a pea, and the colourless pieces rejected. One pound is

heated to redness, quenched in water, and ground to an impalpable powder; to this is added yellow resin, six ounces; turpentine, beeswax, and linseed oil, of each two ounces, previously melted together. The whole is next made into a mass, which is kneaded in successive portions of warm water as long as it colours it blue. From these successive waters the colour deposited is collected, well washed in clean water, dried, and sorted according to its qualities. The first water, which is usually dirty, is thrown away; the second gives a blue of the first quality, and the third and following ones yield samples of less value. The process is founded on the property which the colouring matter of azure-stone has of adhering less firmly to the resinous cement than the foreign matter with which it is associated. When azure-stone has its colour altered by a moderate heat it is reckoned bad or *factice*. Ultramarine is the most costly, but, at the same time, the most splendid and permanent of our blue pigments, and works well in oil.

Ultramarine ashes (Saunders' blue) is obtained from the resinous mass from making ultramarine by melting it with a fresh oil, and kneading it in water containing a little potash or soda, or by burning away the wax and on of the mass, and well grinding and washing the residue with water. It is very permanent, but much less brilliant than ultramarine.

There is an artificial ultramarine, sometimes called azure blue, which is a manufactured pigment, the best being produced in France and Belgium. This blue is also to some extent, though not so successfully, manufactured in England. The want of success is ascribed to the difference of climate, as it can only be manipulated on bright sunny days. The colour is permanent, varying from a deep blue to a light azure.

From the researches of Clement Desormes and Robiquet it has been inferred that the colour of ultramarine depends on the presence of sulphuret of sodium in a peculiar state of combination with silicates of soda and alumina; but according to Elsner and Tirmmon, a minute quantity of sulphuret of iron is also an essential ingredient. It is by heating a mixture of this kind that the artificial ultramarine of commerce is prepared. The finer specimens thus obtained are quite equal in durability and beauty of colour to those prepared from lazulite, while they are very much less expensive.

Cobaltic ultramarine (Chinese blue) is a very rich blue pigment, with many synonyms, prepared by slowly drying and heating to dull redness a mixture of freshly precipitated alumina, freed from water as much as possible, eight to ten parts; arseniate or phosphate of cobalt, one part. By daylight it is of a pure blue, but by artificial light the colour turns on the violet. It is, of all blues, the farthest removed from green. Its vividness is destroyed by white, but its usefulness is not affected. There are no tints of blue which harmonise so sweetly as those made from this ultramarine blue, with the addition of a little red. A cold greenish tinge is peculiar to all other kinds of blue, which therefore require much red to neutralise that property, and so injures the purity of the blue.

A similar kind of blue is known as lime-blue. It is so-called because it may be mixed with quick-lime without injuring the colour. It is almost as bright as ultramarine. Tints of blue-grey may thus be imparted to newly-plastered walls. By the addition of a little Indian red, a series of warm lilac or pure tones may be employed, which will keep their colour. Lime-blue is of no use whatever in oil, although a very useful pigment in water.

Cobalt is somewhat similar to ultramarine, but not so well suited for decorative purposes; it is of a very bright colour.

Prussian blue is a very transparent and powerful colour, of vast body and deep tone. It is of the greatest value, being suited for compounding greens; and is highly

useful in combination with siennas, ochres, chromes, and other shades of yellow. It also mixes well with white-lead. When mixed with lakes or other red colours it is used for making hues and tints of purple. It lasts long enough for ordinary purposes, although not quite so permanent a colour as ultramarine.

Another exceedingly transparent blue is known as Antwerp blue. Although rather peculiar in tone, some very good tints may be made from it for use in contrast. When used with white alone it does not blend harmoniously with other colours, except in very delicate tints.

Yellows.—The ochres are the most useful of the yellow colours to the painter. They are more or less powerful according to their kind, and, like most native earths, are permanent colours. Oxford ochre, which derives its name from the shire where it is found, is the best of this class. In hue it is a rich warm yellow. It is useful for mixing with whites for making buffs, and the ground colours for imitation wainscot oaks, &c. By the addition of a little burnt umber or black, almost any tone of stone-colour may be made; and by the addition of Prussian blue and a little Indian red to Oxford ochre and white, a variety of quiet neutral green tints may be produced. Besides this, there are a number of other ochres which are useful for ordinary work. There are stone ochre, Roman ochre, Italian ochre, and others, but none equal the Oxford ochre for real sterling qualities. There is also a Welsh ochre, which is not of much use when ground in oil. There are many shades of chrome yellow, from deep orange to pale primrose, intensely bright yellows of great pureness and brilliancy. This yellow is, however, of so bright and striking a character, that it can rarely if ever be used in its pure state. Even pure tints, when nearly white, require to be sobered and toned down by the addition of a little red. If we mix chrome, Indian red and white, we get a great many warm, quiet yellow tones; by mixing chrome, Indian red, and a little black, we get another series of useful tints, valuable for colouring, and of a very rich hue. Chrome yellow is also very valuable for mixing with blue to make bright greens, with red and black to make olive, and with red to make orange. Brilliant greens are made of all shades in combination with Prussian blue and Antwerp blue, but as it is to be feared that they ultimately destroy these blues, the use of manufactured greens is to be recommended in preference. Tints made from chrome yellow have an obtrusive gayish look, and do not harmonise well with other colours; the tone should always be subdued by the addition of red.

Terra de Sienna, or raw sienna, is a native earth, and transparent; it has a deep and permanent yellow colour. It is of great service as a glazing colour, and in the imitation of satin-wood and other yellow woods. It is also useful in glazing imitation marbles, especially those of a yellow colour. It becomes, when burnt, of a deep red orange hue, at which time it is much more transparent than in its raw or unburnt state, and is then very serviceable for imitating mahogany, walnut, and several other kinds of wood. When mixed with blue or black, it forms certain tints of warm neutral green, which are not possible to be obtained by any other combination of colours.

ODDS AND ENDS.

To Restore the Colour to Wax Candles when Discoloured by Age.—After wax candles have been kept some time they are apt to turn yellow; the best way to remove this, and restore them to their natural whiteness, is to rub them with flannel moistened with spirits of wine.

Paste for Sharpening Razors.—Take some of the finely powdered oxide of iron used by jewellers, and make it into a paste with olive oil. Sulphate of iron and lard make a paste of a similar nature. These pastes should

be smeared slightly over the surface of the strop, and then smoothed over with a glass phial. The strop should then be hung up exposed to the air for a day before being used.

German Polish for Furniture.—Put in a pipkin over a slow fire four ounces of yellow wax and one ounce of powdered black resin; when melted, add gradually two ounces of spirits of turpentine, and mix them well together. This composition should then be poured into a bottle and securely corked. If some of this varnish be spread over the furniture with a piece of cloth and well rubbed, it will cause the article to appear as if it were varnished.

To Prevent Flies from Soiling Picture-frames.—Paint the frames over with decoction of leeks, prepared by boiling three or four in a pint of water. This will not injure the frames, but it will prevent the flies from resting on them.

To Remove Paint or Tar from the Hands.—Rub the hands with some grease or butter, and then wash them with soap and water.

To Clean Looking-glasses.—Rinse a soft sponge in warm water and afterwards in spirits of wine, and clean the glass carefully with it. Then tie some powdered blue in a muslin bag, and dust a little on the glass, and rub it off as lightly as possible with a very soft linen cloth. Polish the glass with another cloth, and afterwards with an old silk handkerchief.

To Remove Stains from Scarlet Cloth.—Bruise some soap-wort, put it in a cloth and squeeze out the juice, and dissolve a little soap in it. Wash the stains several times with this fluid, allowing the cloth to dry between each washing.

To Clean Gilt Articles.—Brush them for a few minutes with a little soap applied to a soft brush. Rinse them in clear water, wipe them carefully with a cloth, and dry them near the fire. Afterwards polish them with finely powdered burnt bread.

To Take the Stains of Oil and Grease from Floor-boards.—Make fuller's earth into a paste with boiling soap-suds, and rub it while hot over the stains. When dry, clean it off with sand and soft soap.

Composition for Cleaning Tea and Coffee Urns.—Rub together one part of rotten-stone with two of jewellers' "red stuff" (oxide of iron, finely powdered). The urns are to be cleaned with this powder in a similar way to plate.

To Remove Oil Stains from Stone and Marble.—Mix some pipeclay and fuller's earth in strong soap-suds, and apply them to the stained part. Then lay a cold iron on it, and allow it to remain until dry. If the whole of the stain does not come out at the first application repeat the process.

To Keep Moths from Clothes.—Put some clippings of Russian leather in the drawers or boxes where the clothes are kept.

To Render Paper Waterproof.—Pass the paper rapidly through a solution of oxide of copper in liquid ammonia, and iron it immediately.

To Remove Egg-stains from Silver Spoons.—When eggs are eaten by means of silver spoons, the silver becomes discoloured, owing to the sulphur the eggs contain uniting with the silver to form a sulphuret. The quickest and best way of removing this is to rub them with salt between the thumb and finger.

Eggs in Puddings.—If the yolks and whites of eggs are beaten up separately, and then added to the dry flour and well mixed, it will be found that they will go farther than if they were used in any other way. A tablespoonful of yeast added to a pudding will answer the purpose of several eggs.

To Make Screws Hold in Soft Wood.—After having bored the hole in which the screw is to be inserted, put

into it a piece of soft wood half the size of the screw, and previously dipped in melted glue. Then insert the screw as quickly as possible, and screw it home. If no melted glue is at hand, fill the hole with powdered resin, and make the screw hot enough to melt the resin before inserting it. Then screw it in as rapidly as you possibly can.

To Prevent Cloth from becoming Spotted by the Rain.—Wipe off the wet as soon as possible the way of the nap with a silk handkerchief, sponge, or soft brush. By paying attention to this, the clothes will be smooth and free from spots when dry.

To Remove Ink-stains from Furniture.—Pour some lemon-juice on the ink-spot, and rub it well with the finger. Then wipe it off with a cloth, and if the stain has not entirely disappeared apply more lemon-juice. Continue to do this until the stains are removed.

Balls for Removing Grease-stains.—Pour over some fuller's earth sufficient lime-juice to wet it; mix a little pearlash with it, and make the paste into balls about as large as a marble, and dry them.

DOMESTIC MEDICINE.—LVII.

EASILY-PREPARED REMEDIES.

Camphor Julep.—Put in water twenty-five grains of camphor and three drachms of the best loaf-sugar. Rub them together with a little spirits of wine until well mixed. Then gradually add, by small quantities at a time, eight ounces of water, the rubbing being continued until the whole of the water is added and the camphor dissolved, and strain the clear fluid. Camphor julep is a mild stimulant, of which two or three tablespoonfuls may be taken occasionally for spasms and nervous affections.

Quinine Draught.—Dissolve two grains of disulphate of quinine in a drachm of water with two drops of sulphuric acid; then add one drachm of the tincture of orange-peel and the same quantity of syrup of orange-peel. Mix them together, and form a draught to be taken three or four times a day in cases of debility.

A Stimulating Quinine Draught.—Take of disulphate of quinine, two grains; tincture of opium, two drops; compound spirits of ammonia, one drachm and a half; compound spirits of ether, one drachm and a half; decoction of cinchona, ten drachms, and mix them. This draught may be taken three times a day in cases of great debility after fever.

Tonic Draught.—Take dilute sulphuric acid, ten drops; syrup of bitter orange-peel, two drachms, and the same quantity of tincture of gentian; and mix them together. This draught is to be taken three or four times a day in cases of debility, in which quinine does not agree with the patient, or produces headache.

Mild Aperient Draught.—Dissolve four drachms of tartrate of potash and soda in one ounce and a half of water. Then add tincture of senna, three drachms; and spirit of nutmeg, half a drachm. This forms an agreeable aperient draught, suitable for persons in a delicate state of health, for whom the black draught would be too powerful.

Cordial Aperient Draught.—Mix together powdered rhubarb and sulphate of potash, of each twenty grains; compound decoction of aloes, six drachms; aromatic spirits of ammonia, half a drachm; peppermint-water, six drachms. This draught is chiefly suited for elderly people.

Black Draught.—Take of the best senna-leaves, six drachms; sliced ginger-root, half a drachm; best Spanish juice, two drachms; boiling water, nine ounces. Pour boiling water on the ingredients, let it stand in a covered vessel for three hours, and then strain it through linen. Then add two drachms of aromatic spirits of ammonia, half an ounce of tincture of senna, and the

same quantity of the compound tincture of cardamoms, together with one ounce of tincture of jalap, and six ounces of loaf-sugar. Pour the black draught in a stoppered glass bottle, and keep it in a cool place. A small wineglassful of this mixture may be taken by an adult for a dose, and repeated if necessary.

Cooling Lotion.—Dissolve half an ounce of hydropchlorate of ammonia in fifteen ounces of camphor mixture. Afterwards add half an ounce of dilute acetic acid. This lotion is useful for sprains, bruises, and similar affections. It should be applied to the part by means of a cloth kept continually wet with it.

Lead Lotion.—Mix one drachm of the solution of the diacetate of lead and half an ounce of acetic acid in nine ounces of water. This lotion is useful as an application to ordinary ulcers.

Spirit Lotion consists of spirits of wine, one part, mixed with fifteen parts of rose or common water. This lotion is to be applied to inflamed parts, by laying over them a piece of linen wetted with it, and which is to be kept constantly moist with the liquid as often as the linen becomes dry.

Zinc Lotion.—Dissolve eight grains of sulphate of zinc in eight ounces of rose-water. Zinc lotion is employed for indolent ulcers that require stimulating.

Alum Lotion for the Eyes.—This lotion is prepared with one grain of alum dissolved in one ounce of rose-water. It is principally employed in mild cases of ophthalmia.

Lead Eye-water.—Mix together ten drops of the solution of diacetate of lead in one ounce of rose-water. This lotion is to be used when the eyes are inflamed.

Stimulating Liniment for Sprains and Bruises.—Mix two drachms of the solution of ammonia in one ounce of soap liniment.

Iodine Ointment.—Take of iodine, six grains; iodide of potassium, forty grains; lard, one ounce. Powder the iodide of potassium in a mortar, then place it on a slab with the iodine, and add sufficient spirits of wine to dissolve the iodine. Then rub them together, and afterwards mix with the lard. The ointment is to be applied to scrofulous tumours and in large glands where the skin remains unbroken.

Peruvian Balsam Ointment.—Mix together one drachm of balsam of Peru with one ounce of lard. This ointment may be used for ulceration that is attended with a thin fetid discharge. It may be employed either spread on lint or on the surface of a linseed-meal poultice.

Gargle for Sore Throat.—Mix together two drachms of honey, and the same quantity of conffection of dog-roses in seven ounces of water. Then add half a drachm of dilute hydrochloric acid, and half an ounce of dilute acetic acid. This gargle may be used in ordinary cases of sore throat.

Rose Acid Gargle.—Take rose-leaves, half a drachm; dilute acetic acid, three drachms; boiling water, half a pint. Pour the boiling water on the rose-leaves, and let it stand in an earthenware vessel for an hour, then strain it and add the acid. Rose gargle is weaker than the previous one, and may be employed in a similar manner.

Tannin Gargle.—Dissolve twenty grains of tannin and half an ounce of tincture of myrrh in five ounces and a half of camphor mixture. This gargle is to be used in cases of spongy gums, salivation, relaxed throat, and similar affections.

Gargle for an Ulcerated Mouth.—Mix together one drachm of the solution of chlorinated soda with three ounces of rose-water, and add one ounce of honey.

Astringent Gargle.—Dissolve one drachm of alum in six ounces of the decoction of cinchona; then add two drachms of tincture of myrrh, and twenty drops of dilute sulphuric acid. This gargle is useful for sore throat attended with relaxed tonsils.

WORKING IN HAIR.

I.

THE imperishable nature of human hair, and the great brilliancy and beauty which it retains long after it has been severed, and even after the person to whom it once belonged has passed away, have always rendered it one of the most cherished mementoes of absent or departed friends. The art of working this material into designs for brooches or other ornaments is far from being a difficult one, the chief requisites being neatness of hand, and some little patience; and it may be carried on with the aid of but few tools and appliances. It is, in fact, so simple, that we may well wonder at its being so rarely practised; especially when we consider how liable those persons who entrust the cherished hair of a relation or friend to professed workers are to be deceived by having ready-made devices similar in colour, but manufactured from the hair of some person with whom they are, probably, wholly unacquainted, substituted for it. Of course, in all hair jewellery or ornament the chief value is a sentimental one, and when any doubt exists of the hair itself being genuine all real interest attaching to the article is lost; naturally, therefore, any person would prize a device of this kind when worked by his or her own hand—and of the genuineness of which no doubt could consequently exist—far more than one from the shop of the professed worker, although perhaps less neatly executed, and of less elaborate design.

Materials.—All kinds of hair may be used for this description of work, but that which is soft and long can be more readily manipulated, and is best fitted for the more intricate designs and delicate curves. The hair of children, generally, is worked with greater ease than that of grown persons, whilst the back hair, and especially that from the nape of the neck, will be found more pliant, and consequently better suited for use in this art than that from other parts of the head: coarse and stiff hair will be best combined into such designs as will admit of its being used in straight lines, such as plaits. In some more complicated devices a pretty effect may be obtained, as is shown in our designs, by using hair of two or more shades or colours, which will sometimes increase the sentimental interest of the ornament, as, for instance, when the hair of a husband and wife, mother and child, or that of the different brothers and sisters of a family, is used together.

Tools and Appliances.—A complete set of tools and appliances is to be bought at some of the shops at prices ranging from one guinea upwards, but the articles are so simple that such an outlay is by no means necessary. A china palette, on which to lay the hair, will be found useful, though for this the bottom of a plate, or piece of glass, may be substituted. Tablets of opaque glass, upon which to affix the device, and which will form its groundwork, must necessarily be bought; these are not expensive. Three or four camel-hair pencils will be useful, a small pair of curling-irons, if the operator proposes

to use curls in his design; a diamond-shaped knife, for which a pointed penknife may be substituted; a palette knife, or thin table knife, to cleanse and smooth the hair; a pair of sharp scissors; some liquid gum; some gold-beaters' skin, to which hair is attached for the formation of some patterns; and for the purpose of giving finish and additional embellishment to the work, it may be desirable to procure a reel of fine gold wire thread, some small pearl beads, and Indian ink, and brown water-colour tints to match the different shades of hair, with which to touch up and occasionally to give a little extra decoration to the different devices.

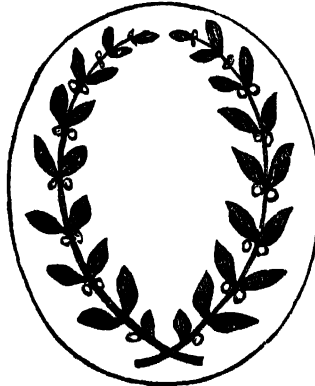


Fig. 3.

Preparing the Hair.—All hair in its natural state will be found to be more or less greasy and dirty, and should therefore in every instance undergo a thorough purifying before being made use of. For doing this a cleansing solution should be made by dissolving in half a pint of hot water a lump of washing soda, about the size of a marble, and another of borax of equal magnitude. In this the hair must be placed and allowed to remain for a minute or two; then it must be spread out on the palette, or some other hard, smooth, and clean surface used instead, and carefully scraped with the edge of the knife, until every impurity has been removed; whilst this is being done the hair must be held down firmly by its ends with the left hand. The partially-cleansed hair should

now be washed in a second solution of borax alone, and then can be trimmed evenly at the ends with the edge of the knife, or by means of scissors; but, before replacing it on the palette for this purpose, the surface of that article must be carefully washed and wiped, to free it from any grease or dirt which may have become attached to it during the preliminary cleansing of the hair. This cleansing process will, in every case, be necessary, and

will be equally applicable to hair intended for twisting into watch-guards and to that designed for the more artistic devices of which we have now especially to speak.

Working Designs in Hair.—One of the most simple and easily worked designs is the plain plait; this is made in the following manner:—A piece of gold-beaters' skin is taken, and first

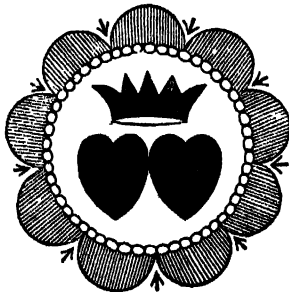


Fig. 1.

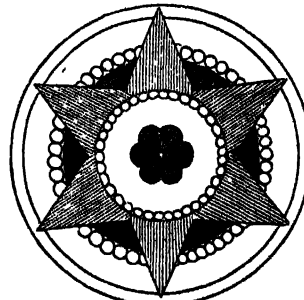


Fig. 2.

softened, that it may lie smoothly and evenly, by damping it with a little water, and gummed down upon the palette by the edges only. When it is considered sufficiently dry to be firmly fixed, take a camel-hair pencil and draw a line with the solution of gum longitudinally along one of its edges. Upon this line place some of the prepared hair, and smooth it down with the knife and pencil, taking care that the hairs lie closely together, and that they do not overlap each other. When the first strip is properly covered, gum another strip and cover it with hair in a similar manner, and so on until the whole piece of skin is covered. Having trimmed off the loose and uneven ends, the skin can now be removed from the palette by passing a knife under its edges, and laid between two sheets of paper, under a sufficient weight, to be pressed until it is dry. When this is accomplished cut the skin into

strips of the desired width and length, and gum down several, say five or seven, side by side by the left-hand ends to a sheet of writing-paper; these will form the warp of the plait, and similar strips to form the woof can be interwoven with them, alternately passing above and below them. The plait when finished must be gummed down upon the paper, and the whole will then require to be subjected to pressure in the same manner as the hair when first fixed upon the skin. When thoroughly dry and properly flattened, the plait can be cut into any shape to fit the brooch, locket, or other article for which it is designed. Simple as is the plait, there is, perhaps, no form in hair jewellery in really better taste for preserving a memento of a friend.

Other devices may be formed in a similar manner of hair previously gummed to gold-beaters' skin (including flowers), more especially such as those of which we give examples in Figs. 1 and 2. In these, it will be seen that the design should first be roughly sketched upon the tablet, and the different parts then cut out from the hair-covered skin, and gummed separately into their places. In Fig. 1, the two hearts are prepared to be made from the hair of two persons, as of those of husband and wife, while the lighter hair of their child may be employed for the crown and border. In Fig. 2, the star might be formed from the lighter hair of the lady, the darker part from that of the gentleman, or *vice versa*. In the latter design, space is left round the circumference for an inscription. The bands of pearls, shown as introduced in both of these devices, are formed by first neatly affixing a narrow strip of white paper round the pearl line; the small pearl beads are then to be divided into two halves, by forcing a pin into the holes in their centres, and fastened with gum upon the paper. More finish may be given by picking out the triangular spaces between with Indian ink.

A somewhat different process to that which we have described will be required in carrying out the mourning brooch shown in Fig. 3. The central stems of the bay-weath are formed of hair, not fixed beforehand to gold-beaters' skin, but simply dipped in the solution of gum, and then carefully arranged in its place on lines previously sketched upon the tablet. We may here observe that, in all these designs, it is well to keep the tablet firm by fastening it with gum to a sheet of paper. The leaves in this brooch are formed, as before, of hair fixed upon skin; the berries are halved pearls; the letters of the inscription should be carefully put in with Indian ink.

TEXTILE FABRICS IN DOMESTIC USE.—VI. COTTON.

As we have already remarked, cotton fabrics, although not nearly so durable or beautiful as those of flax or silk, are, from their almost universal use, and the numberless purposes to which they may be and are applied, of the utmost importance in the household. It is only in comparatively few houses that linen sheets and under-clothing are generally adopted, on account of their expensive character; and in the humbler circles of society cotton not only has to take the place of linen, but of silk and velvet, being, in these cases, used as the outer dresses as well as for under garments. When these facts are taken into consideration it will at once be observed that, although placed by us a long way down in the list of textile fabrics, it is really, from its great cheapness and adaptability to so many uses, much more important than many of the richer materials before noticed.

There are a great number of sources from which the cotton supply is derived; and as the quality of material varies in each, we may mention some of their peculiarities. That of the finest quality is mostly grown near to

the sea, and is generally known as Sea Island cotton (the largest plantations are in South Carolina, Georgia, and Florida), and it derives its name from its having first been extensively cultivated in the low sandy islands on the coast from Charleston to Savannah. The superiority of this kind of cotton is due to the fact of the threads or filaments being longer than is the case in other varieties, while with this is combined a peculiar even and silky texture, which, combined, fits it for the production of the finest yarns and fabrics. Upland cotton is of a rather coarse quality, but upon the whole the American cottons may be safely considered as the finest. Some varieties of cotton are produced and exported from India, China, Egypt, Australia, &c., but from America is derived the chief supply for manufacture in this country.

It is very difficult to entirely remove the seeds of the cotton-plant from the long, wool-like filaments which are required to be made up into cotton yarn; and it is one of the tests to which the raw cotton is subjected to ascertain how well, or imperfectly, this operation has been effected. Even the best samples scarcely ever arrive in this country with this process effectually performed; and the quality of the sample is judged by its cleanness and freedom from seeds, as well as by the length of its staple and the delicacy of its fibre. After cleaning, the wool is brought to what is called the lapping machine, which is used for the purpose of regulating the weight and richness of the yarn, and of course, consequently, the fabric which is ultimately wrought out of it. The next operation is that of laying the fibres parallel, a process which is of course essential when the material has to be spun. This process is called "carding," and when the wool leaves the machine, it is in the shape of a very thick ribbon, with all the fibres laying parallel, when it is ready for spinning into yarn or threads—after having been somewhat extended in length, and drawn into a closer texture by means of the "drawing machine." The roving of cotton fibres simply consists of laying this ribbon out to the required thickness, and imparting to the fibres so much of a twist as will enable it to hold together, and may, in fact, be termed the beginning of the spinning process.

The cotton cloth known as calico is certainly one of the most common of all textile fabrics; and, considering the important and prominent part which it occupies in the household, it may be safely said to be one of the most useful. As we have before remarked, there are but comparatively few households in which linen is in common use for under-clothing, sheets, &c., and in these humble establishments calico is the unvarying substitute; and it answers the purpose excellently, being warm, and, if of good quality, durable and serviceable. Calico is manufactured of various widths and qualities, according to the purposes to which it is to be applied. For instance, besides the differences of texture as to thickness, and closeness of weaving, it may be either bleached or unbleached, while as to width, it may be obtained in breadth varying from three-quarters of a yard to two and a half yards. The wider varieties are usually of rather better quality than those which are narrower, but those of extreme width are generally only applied to the manufacture of bedding. In price calico varies from threepence to two and sixpence per yard; and in some cases a very fine sample will be worth even more than that. From the foregoing remarks it will be seen that this variety of cotton-cloth may be procured of a sort applicable to almost every purpose for which a textile fabric is suited, and hence arises the enormous demand, which is year by year increasing.

There are two great classes into which cotton-cloth may be roughly divided; namely, those respectively called bleached and unbleached. The first of these has the natural colour discharged by chemical means, in which process chlorine, in one or other of its forms or compounds,

is an important agent. In the second, the colour is that of the raw cotton, and is generally of a very light brown. Although the process of bleaching has been so perfected as that it may be effected without much loss of strength to the fabric, it is still the general opinion that the unbleached is of the two the most durable. One thing is certain, namely, that it is much cheaper; and, as a very few washings will remove a great deal of the colour, it may be recommended on that account. Besides this, housekeepers assert that a calico which has thus been, as it were, naturally bleached, will keep its colour much better than one in which the process has been effected by artificial means. Another advantage exists in the fact that, much of the whiteness being produced by means of various dressings used and applied to the surface of the cloth, and altogether independent of, and useless to it, the real quality may be more readily and surely determined when purchased. In fact, many of the cheaper varieties of calico are now so dressed up and adulterated, that it is a difficult matter to find out what their quality really is, unless the purchaser knows well how to detect the trickery by which it is concealed.

The distinguishing qualities of a good cotton fabric are chiefly these:—First, a very close texture; that is to say, the threads must be closely woven together. The best method of determining this is by holding it up to the light, when its good or bad quality will be at once apparent. In a thoroughly good cloth it will be observed that, besides the closeness of weaving, the material will be very evenly woven, and that the same degree of fineness is kept throughout the piece. Another test of quality is that of the condition of the surfaces; which should be smooth, even, and free from knots or lumps. Some calico is exceedingly thin; this is of course a defect; and as it is one which generally accompanies a very open and loosely-woven fabric, it may at once be rejected as likely to be of the most unserviceable description. The various degrees of softness must of course be considered in reference to the question of thickness, as while a soft fabric is in most cases the best, that quality must not be obtained at the expense of loss of thickness and closeness of weaving. Of colour we have already spoken, and would merely observe that it is not wise or economical to pay a very high price on this account alone. Some of the better varieties of calico are altogether lighter in tint than those of inferior manufacture; but care must be exercised in ascertaining that this is the result of the use of superior cotton, and is not due to a dressing of some light material placed upon the surface of the cloth.

Hitherto we have been speaking of unbleached calico, which is, as a rule, more free from the various adulterations which are used to produce a white and smooth surface than that which is known as bleached; and hence in purchasing the latter, greater care is necessary than in the former case. It is in bleached calico that the manufacturers allow their adulterating propensities to have full swing; and it could hardly be called exaggeration if we were to say that some of the so-called bleached calicoes are at least half made up of dressing of various kinds. Now this dressing is not of the smallest practical utility, as it adds nothing whatever to the fabric to which it is applied which is of the least service in use. It is, in fact, merely a coating of material which serves to disguise the real character of the cloth, and it is used simply to improve the appearance of the texture until it is sold. It may therefore be said to be used merely for purposes of deception, to make the unwary purchaser believe that she has a much better quality of material than is really the case. Under these circumstances, then, too much care cannot be given to testing all cotton fabrics which have this dressing upon their surfaces. Very fortunately the adulteration is easily detected. If the cloth be taken in both hands, and its surfaces rubbed smartly together, the

dressing will be speedily and easily removed. When this is effected, the real quality of the material may be easily ascertained by examining the closeness of the texture as before directed, and if the cleared portion of the fabric be now compared with that which retains the dressing, it will be readily seen how much of its whiteness, smoothness, and beauty it owes to adulteration. As a general rule the commoner varieties are most liable to this facing—by means of which, with the aid of careful rolling and calendaring, they are made to closely resemble material of a much finer quality. In all other respects bleached calico may be tested as before described in the case of that which is unbleached; that is to say, for softness, closeness, and the thickness and smoothness of its texture.

COOKERY.—XCI.

FRENCH DISHES, ETC. (continued from p. 324).

Epinards à la Cuisinière (Spinach Dressed in the Common Manner).—Blanch some spinach in the way previously directed, chop it in pieces, and put it into a stewpan, with butter, salt, pepper, and nutmeg. Cook the spinach until it becomes brown, and add butter thickened with flour, with some milk. This dish is sent to table with slices of toasted bread on its surface.

Oseille au Maigre (Sorrel without Meat Gravy).—Chop up some sorrel, with beet-root, lettuce, and a little chervil, previously washed and dried. Put them in a stewpan over the fire, and stir them continually until they become soft. Then stir in with them a piece of butter, and allow the vegetables to remain over the fire until cooked. Afterwards season them with salt and pepper, and pour over them the yolks of three eggs beaten up with milk.

Oseille au Gras (Sorrel with Meat Gravy).—Cook the sorrel in the manner previously directed until it becomes soft, and if much water is yielded by the vegetable, empty it out of the saucepan. Then put in some butter and stir it continually, and afterwards pour some *jus*, the gravy from roast meat, or stock broth over it, and boil it down to the proper consistence.

Laitues (Lettuces).—This vegetable, after having been washed and cut in pieces, may be cooked in the various ways directed for *épinards à la maître d'hôtel*, *épinards au gras*, or *épinards à la cuisinière*.

Laitues Farcies (Lettuces with Stuffing).—Take the hearts of some fine lettuces, remove the outer leaves, blanch, and immerse them in water to cool them. Now squeeze them between the hands, to expel as much of the water as possible, and open the inside of the lettuce without separating the leaves, and fill the inside with stuffing. Bring the leaves together, and tie them with string so that the stuffing may not escape, and cook them with slices of bacon, carrots, and onions cut small, parsley, chives, thyme, and season with nutmeg and pepper. Then pour some stock broth over them, and simmer the whole until the lettuces are done. Remove the lettuces, strain the liquor, and boil it down with half a glassful of white wine and some butter thickened with flour.

Laitues Frites (Fried Lettuces).—Cook some lettuces in the manner previously directed, with slices of bacon and vegetables. Then dry them in a cloth, and when they are cold dip them in *pâte à frire*, and fry them.

Choux-fleurs à la Sauce Blanche (Cauliflowers dressed with White Sauce).—Put the vegetables in boiling salt and water, and boil them. When done remove them from the saucepan, allow them to drain, and arrange the cauliflowers on a dish. Then prepare some *sauce blanche*, season it with nutmeg and pour it over the vegetables.

Choux-fleurs à la Sauce Brune au Beurre (Cauliflowers with Brown Sauce with Butter).—This is prepared in the same way as the last, *sauce brune au beurre* being substituted for *sauce blanche*.

Choux-fleurs en Pain à l'Italienne (Cauliflowers with Bread in the Italian Manner).—Boil the cauliflowers in salt and water, put them in cold water, and drain them. Sprinkle them over with grated Parmesan cheese, and arrange them on a dish. Afterwards cover them with thick white sauce, in which some of the grated Parmesan cheese has been mixed. Mix the sauce thoroughly with the cauliflowers, and cover them with bread-crumbs and more grated cheese. Pour some melted butter over them, and again cover them with bread-crumbs. Then bake the cauliflowers in a Dutch oven, or else put the dish on some hot cinders, and place a hot cover over it, with some burning embers on the top.

Choux-fleurs Farcies (Cauliflowers with Stuffing).—Blanch the cauliflowers in salt and water, dip them in cold water, and drain them. Place them in a stewpan on some slices of bacon, the head of the cauliflower being placed underneath; at the same time taking care to employ a stewpan the exact size of the dish you intend to prepare. Fill up all the vacant spaces left between the cauliflowers with a stuffing composed of fillet of veal, beef suet, parsley, chives, and mushrooms, all chopped up together, with salt, pepper, and nutmeg, and three raw eggs beaten up. Pour some stock broth over them, and let simmer at a gentle heat until done. Then empty the contents of the stewpan on a dish, and serve it up covered with some thick *sauce Espagnole*, or, if preferred, some tomato sauce.

Gâteau de Potiron (Pumpkin Pudding).—Cut a pumpkin into square pieces, and put the pieces over the fire in a saucepan, until they become soft. If they are now found to be too moist, squeeze them in a cloth to get rid of some of the water. Then put the pulp in a stewpan with some butter, and fry it. When done mix a spoonful of arrowroot in milk sweetened with sugar, and simmer the whole until it becomes reduced to a proper consistence. Then let it become cold, and thicken it with three eggs beaten up with a small quantity of water. Afterwards butter the inside of a stewpan and cover it with bread-crumbs, and put the cooked pumpkin into it. Place the pan over some hot cinders, put the lid on, and throw some burning embers on it, and when the pudding is browned serve it up on a dish.

Salade (Salad).—Having mixed the salad, season it with salt, pepper, and vinegar, stir it up well, and let it stand for an hour. Then drain off the fluid that escapes, pour some salad oil over it, and again mix it well.

Crêpes (Pancakes).—Beat up together in a batter three spoonfuls of potato-starch with five raw eggs, some loaf-sugar powdered, and a little water. Then add enough milk to bring it to the consistence of porridge. Now cover the inside of a frying-pan with butter, and place it over a moderate fire. When sufficiently hot pour in a large spoonful of the batter, and shake the pan so as to spread it over the whole of its surface. When the pancake is cooked throw it on a dish, and sprinkle its surface with crushed loaf-sugar, or cover it with jelly.

Quenelles de Pommes-de-terre (Potato Balls).—Cook some potatoes in steam or boiling water, mix with them some butter, salt, pepper, parsley, and chives chopped up, grated nutmeg, and a few raw eggs. Make them into balls, cover them with raw eggs beaten up, and fry them. Potato balls may also be cooked in stock broth, or in boiling water, and sent to table with tomato or other sauce.

Pommes-de-terre (Potatoes).—These vegetables are best cooked by exposing them to the steam from boiling water. But if it should be preferred to boil them, they may be removed from the water when cooked, a folded cloth placed over them, and the lid put on the vessel, in which they should be allowed to remain for a quarter of an hour, or longer if convenient.

Gâteau de Pommes-de-terre (Potato Cake).—Pound in

a mortar some steamed or boiled potatoes, with butter, and beat up with milk in which sugar has been dissolved. Boil them, and remove the stewpan from the fire until nearly cold, when the contents are to be thickened with some raw eggs beaten up, and proceed in the way directed for *gâteau de riz*.

Fécule de Pommes-de-terre (Potato-starch).—This substance is useful to thicken white sauces, add to prepare *potages au gras*. For these purposes it should be beaten up with a small quantity of the liquid, and added to the sauce, taking care to stir it continually until mixed.

Pommes-de-terre Frites au Beurre (Potatoes Fried in Butter).—Peel some raw potatoes, and cut them in thin slices. Fry them in butter over a hot fire, continually turning them, until they become sufficiently brown. Let them drain, and then arrange them on a dish, and sprinkle some salt over them.

Pommes-de-terre à la Maître d'Hôtel.—Boil or steam some potatoes, cut them in slices, and pour over them some butter seasoned with herbs, lemon-juice, salt, and pepper.

Pommes-de-terre au Blanc (Potatoes with White Sauce).—Thicken some butter with flour in a stewpan, add some milk or cream, with chives and parsley cut small, and season with salt, pepper, and nutmeg, and boil them to the consistence of sauce. When ready, put in it some cooked potatoes cut in slices, and some eggs beaten up.

Pommes-de-terre au Roux (Potatoes with Sauce).—Put some butter in a stewpan, thicken it with flour, and fry some onions in it until they become brown. Then pour over them some stock broth, and season it with salt and pepper, nutmeg, and vinegar. When the onions are sufficiently cooked, add some cooked potatoes, and let them remain until they are hot, and then send them to table immediately.

Navets au Roux (Turnips in Sauce).—Prepare a *roux* with butter, flour, and sugar, and cook in it some turnips, previously blanched and cut in slices, until they change colour. Then add some stock broth, and boil it down to the consistence of sauce.

Navets à la Moutarde (Turnips with Mustard).—Boil some turnips in water, lay them on a plate, and pour over them some *sauce au beurre* in which half a spoonful of mustard has been mixed. Turnips may also be served *au blanc*, the mustard being omitted from the *sauce au beurre*.

Carottes au Roux (Carrots with Sauce).—Cut some carrots in slices, blanch them in boiling water, and then prepare a *roux* to which some sugar should be added, and pour some stock broth into it. Put the carrots in the *roux*, and then season it with salt, pepper, and nutmeg, and boil it down to a sauce. If required, the sauce may be thickened by the addition of butter and flour, or some *jus*.

Oignons en Matelote (Onions en Matelote).—Make a *roux* with butter, flour, and sugar, and cook some onions in it until they are browned. Then pour over them some gravy, *jus*, or white wine and stock broth, and season with pepper and herbs. Little if any salt should be used; but this will depend on the quantity contained in the stock broth or *jus*. When the onions are cooked take them from the pan, and keep them in a warm place. Then boil the liquor in the stewpan into sauce, add a little butter, and pour it over the onions.

Artichauts au Sauce Blanche (Artichokes with White Sauce).—Boil the artichokes in salt and water; when cooked serve them with *sauce blanche*, or any other sauce of a similar kind that may be preferred.

Artichauts Frits (Artichokes Fried).—Blanch the artichokes, and cut them in about a dozen pieces, and remove the outer leaves at the part where they join the stalk, leaving only the most tender. Dip them in *pâte à frire*, and fry them of a good colour.

SCOTCH COOKERY.

Cock-a-Leekie and Leek Porridge.—An idea once prevailed that there was nothing so good for soup as an old cock, and it is probable that this soup owes its origin in Scotland to this notion. Some authorities are of opinion that cock-a-leekie is only the Scottish representation of a very old English dish that went by the name of Malachi in the fourteenth century. To make cock-a-leekie, trim two bunches of fine leeks, wash them well, reject the coarse green part, and cut the white part into inch lengths. If they are old and strong, it will be better to throw them into boiling water for five minutes before using them. Put a capon in broth, and when the liquor boils throw in half of the leeks. Skim the liquor carefully, and in half an hour add the remainder of the leeks and a seasoning of pepper and salt. In another half hour or so the soup ought to be done enough. When ready to serve, take out the fowl, cut it into neat pieces, put these into a tureen, and pour the soup over them. The broth should be very thick, and the leeks which were first put in should be boiled down into the soup. When an old cock is used for making this soup, it should be stewed for two or three hours in the stock before the leeks are added. It is very commonly chosen for the purpose, but of course a young fowl is to be preferred. Those who do not like the flavour of the leeks may substitute greens, not too finely shred, for one-half of them. Some people thicken cock-a-leekie with finely-ground oatmeal. French plums used to be put into this soup, but they are nowadays usually dispensed with. It is said that Talleyrand greatly enjoyed this soup, and advised that the prunes should be stewed in it, but not served. A good deal of the cock-a-leekie that is prepared at the present time is made without any fowl at all. Then, if thickened with toasted or fried bread, it becomes leek porridge.

Pancakes for Tea.—Put a pint of buttermilk into a bowl, and stir into it as much flour as will make a batter rather thicker than that ordinarily used. Add a tea-spoonful of butter, a little sugar, and salt. No eggs will be required. Warm the girdle over the fire, and rub it round quickly with a little suet on a fork. Put on a spoonful of the batter, and let it spread till it forms a cake four or five inches in diameter, and a little thicker than an English pancake, and when it is brown on one side, turn it over to the other with a slice. Butter these cakes, and serve them at tea. The girdle is a utensil much used in Scotland. It consists of a round iron plate about an eighth of an inch thick, and a handle. It is put over the fire.

Oat Cakes.—Put some Scotch oatmeal, mixed with a little salt, into a bowl. Add a nut of good sweet dripping, and stir in briskly as much boiling water as will make a very stiff paste; sprinkle a little dry oatmeal on the board, put the paste on it, and knead it quickly. Roll it out very thin (with a cake roller, that is, a sort of grooved rolling-pin), cut it into four pieces, and lift it with the hands upon the heated girdle, which, in this instance, must be quite dry. When it is done upon one side, turn it to the other, and lift it off the fire. Oat cakes should be toasted before being used.

Scones.—Put a pound and a half of flour into a bowl; mix with it a pinch of salt, a heaped tea-spoonful of carbonate of soda, and the same quantity of cream of tartar, and pour in a pint of sour milk. Mix the dough with the hands, knead it a little, roll it out into oval cakes, cut these in four, and bake in a quick oven for ten minutes. Sour milk may any time be utilised in making scones, or a little milk may be taken and kept until it has turned.

Barley Meal Scones.—Pour boiling milk, slightly salted, on barley meal, to make a soft dough. Mix this with a little more barley meal on the paste board, roll it out rather thin, and cut the scones about the size of a saucer. Bake

these on both sides on a girdle, and, as they are done, pile them on a plate before the fire to keep them soft. Serve hot on a napkin.

Potato Scones.—Take equal parts of flour and mashed potatoes, and add a little salt. Knead to a stiff dough with boiling water. Roll them out into thin cut scones, and bake on a girdle, like barley meal scones. Old potatoes left from dinner may be used for making scones.

Breakfast Scones.—Rub two ounces of butter into one pound of flour, and make up into a stiff dough with buttermilk. Knead well, cover it with a cloth, and put it before the fire for half an hour; roll it out thin, cut it into round cakes, and bake on a girdle dusted with flour. Butter and serve hot. The addition, in the first instance, of a little carbonate of soda to the dry flour will convert these into *Soda Scones*, but they must neither be so much kneaded nor rolled out so thin as when the soda is omitted.

Scotch Christmas Bun.—Mix three-quarters of a pound of butter with two pounds of baker's dough. Cut off one-third of the quantity and lay it aside for the cover. Take a pound and a half of stoned raisins, two pounds of cleaned currants, four ounces of blanched almonds, sliced lengthwise, four ounces of mixed candied peel cut small, and a quarter of an ounce each of powdered cloves, allspice, and ginger. Mix the spices, spread out the dough, and lay the fruit upon it; sprinkle the spices on the fruit, and knead all thoroughly together, then form the mixture into the shape of a thick round cheese. Roll out the cover into two thin round pieces, one rather smaller than the bottom of the bun, the other much larger, to cover the top and sides. Put the bun, bottom upwards, in the middle of the large round, put the other on the bottom, and join the two edges of the pieces of dough securely together, folding the large piece a little over the other, and moistening them to make them stick. Prick the pastry, and bind the bun in paper to keep it in shape. Bake it in a tolerably quick oven, and just before it is taken out brush the top over with beaten egg. These buns may be also made in the shape of household loaves.

Short Bread.—Mix four ounces of powdered sugar with a pound and a half of flour. Stir in quickly a pound of butter, either fresh or salt, that has been melted and freed from sediment. Knead the bread a little to mix it smoothly, but the less it is kneaded the shorter it will be. Roll it out lightly into a well-shaped cake of any desired form, three-quarters of an inch thick. Notch or scollop the edges, and dab them on the top with an instrument used for the purpose—the “dabber”—and sprinkle caraway comfits on the top, or ornament it with strips of candied peel fancifully arranged. Bake in a moderate oven on a floured sheet of white paper put upon a tin baking-sheet. Short bread, intended as a holiday present to friends at a distance, is made still richer in butter, and flavoured with sliced candied peel and blanched almonds.

GARDENING.—LVIII.

BORDER EDGINGS (continued from p. 308).

OF artificial edgings, there is nothing better for simplicity, cleanliness, and durability, than the edging-tiles manufactured for the purpose, of which there are various patterns, but the simpler patterns are the most generally useful and desirable, as being more appropriate to the surroundings, less liable to be broken, and less likely to injure children if they fall on them; and that known as the cable pattern we consider the best of all to meet these requirements. It is a simple, plain tile, with a scroll top, resembling in a length of edging, a cable laid on. Another good serviceable tile is the O G pattern, which also has no projections on it, and this is a great consideration in kitchen gardens, where garden operations are constantly

scalloped, diamond, castellated, and club-topped patterns; and others are fluted, or have a floral design moulded on the face of the tile, the selection from which must of course depend on individual taste. They are made in various materials—common red ware, which is the most inferior and most liable to break by being struck or by the action of the frost; white terra-cotta; brown and black glazed ware; and blue terra-metallic ware, which is the hardest and most durable of all. They are generally made in nine or twelve inch lengths, and are, according to the pattern, eight or nine inches in height, and are sold at prices varying from 10s. 6d. to 25s. per hundred, according to the quality of the material, and simplicity or intricacy of the pattern. These and all other artificial edgings may be put down at any time of the year, with the exception of any time when the ground is frozen, in which case the work should not be attempted, as, it being impossible to get the ground properly consolidated then, the tiles will settle irregularly, and the work may have to be done over again.

The mode of laying or placing these tiles, is to tread and ram the ground on the line they are to occupy, making it up solid and perfectly level to the line the edge of the gravel-walk does or is to occupy. The gravel must then be removed as for box-planting, taking care not to disturb the prepared ground. The line the tiles are to occupy must then be cut down as for box, only that the face of the wall of soil must be quite vertical, and it must not be cut quite so deep as the depth the tile is to be sunk below the line. This will ensure that there is no portion of soil unnecessarily removed; the remainder must be worked out with a trowel for each tile as it is placed. After the tiles are in position, the soil and gravel should be returned a little at a time, treading down firmly each time to thoroughly consolidate them; a rammer should not be used lest it disturb the tiles.

Good, plain, hard bricks may be placed on end, leaving about two inches and a half above the gravel, and make a good serviceable edging for kitchen gardens. They may also be made to have a little more ornamental appearance by placing them in an oblique position, showing above ground a row of triangular points, but the soil is apt to wash through the interstices with heavy rain, if the ground rises from the edge.

A good, hard edging may be made with a material called pottery burrs—a waste material obtained on the breaking up of the stoneware potters' kiln—a large proportion of which is in flat slabs of about two inches' thickness, and of various sizes, but as they generally break out tolerably square, they may be fitted together very well. It is necessary, on purchasing, that they be selected for the purpose. This material, some years ago, could be obtained in the neighbourhood of London very cheaply, but the demand for it lately, for the construction of rockwork ferneries, and other garden purposes, makes it a rather expensive article, considering the nature of its production. A good one-horse cartload will cost, now, from 15s. to £1, and that quantity will be sufficient to form about 250 feet of edging. This makes a very suitable edging in the neighbourhood of rockwork or other rustic garden architecture, with which it harmonises well.

Another material of an even more rustic character, is to be procured from the brickfields, and is also called burrs. It is composed of bricks that have, from extreme heat in portions of the kiln, become partly melted and run together; when cold, they have a very rugged and characteristic appearance. These, from their shape, can only be formed into a somewhat irregular edging; the line next the path may be tolerably well preserved, but it is

regularity. If used rather large, the edging will, from its weight, not need sinking into the ground at all, but may just rest on the surface. A pretty effect may be had by planting in the crevices some compact-growing plants, such as sedums, sempervivums, saxifrages, &c. These burrs may be purchased at about the same price as the pottery burrs, but they will not go so far.

A rustic edging, suitable for association with ferneries composed of timber butts and pollards, or any rustic woodwork, may be made of waste pieces of the loppings of trees; straight pieces of about fifteen inches in length, pointed at one end, and tolerably equal in diameter, driven into the ground close together, and upright, leaving about three inches above the path of a uniform height, have a pleasing appearance, and will last some years. Longer pieces driven deeper into the ground, may be allowed to stand out of the ground to a greater height, for the formation of raised beds. A circular bed thus edged, may very appropriately have a light arch of rustic wood formed over it for climbing plants; or the centre of the bed occupied by a rustic basket on a pedestal of timber, is also good.

CAKES MADE WITH INDIAN CORN-MEAL.

Indian Pound Cake.—Make into a paste three-quarters of a pound of meal, a quarter of a pound of sugar, half a pound of butter, eight eggs, and a grated nutmeg.

Indian Cake.—Add to a pint of sour milk a tablespoonful of sugar, the same quantity of butter, one egg, sufficient meal to thicken it, and a teaspoonful of carbonate of soda.

Ginger Cake.—Mix in a quart of sour milk, the same quantity of meal, and a pint of flour; add a gill of treacle, two teaspoonfuls of carbonate of soda, and some salt and ginger.

Hoe Cake.—Mix together three tablespoonfuls of cream in a teacupful of butter-milk, and sweeten it with three tablespoonfuls of sugar. Then add gradually sufficient meal to render it a little thicker than batter, and flavour it with salt and spice to suit the palate.

Johnny Cake.—Make a batter of the consistence employed for pancakes, of the following materials: a quart of milk, a teacupful of wheat-flour, a sufficient quantity of Indian meal, three eggs, and a teaspoonful of carbonate of soda. Pour the batter into a tin pan well buttered inside, bake it in a hot oven, and eat it warm with milk or butter.

Corn-meal Cake.—Mix together a pint of meal, a teacupful of sour cream, and the same quantity of fresh milk, half a cupful of treacle, one egg, a teaspoonful of carbonate of soda, half a teaspoonful of salt, and as much cinnamon, nutmeg, or other spice as may be required to flavour the cake.

Batter Cakes.—Add a teaspoonful of carbonate of soda, and a little salt to a pint of sour milk. Stir in it sufficient meal to make it into a thick batter, and cook it like pancakes in a frying-pan.

Another Way to make Batter Cakes.—Mix thoroughly a quart of meal in the same quantity of boiling water, and two raw eggs previously well beaten up. Then season the batter with salt, and cook it as above directed.

A Cheap Way to make Batter Cakes.—Make a batter of equal parts of meal and boiling water, add a little salt, and allow it to become nearly cold. Then mix some yeast with it, and when it has risen sufficiently, cook it in the usual way.

Corn Muffins.—Mix together a quart of butter-milk, a few eggs, some flour, and enough meal to form a paste. Then add a tablespoonful of melted butter, and some salt. Then bake it in a well buttered pan.

HOW TO CATCH AND PRESERVE BUTTERFLIES AND OTHER INSECTS.

THE preservation of butterflies, moths, and insects generally, forms one of the studies and amusements of a household; frequently at least one if not more of a family seeks for insects during the fine summer months, and makes a collection, by fixing them in a cabinet, as they do geological and botanical specimens.

We must not go deeply into the beautiful branch of natural history which treats of insect life; that must be studied from works prepared especially to teach the classes and orders of the various tribes. There are many entomological books that will be easily found, if the study is taken up for the sake of information; and there are few more interesting studies than the formation and habits of insects.

In searching for insects, the whole summer, indeed the whole year, will furnish specimens; and these specimens are all named and divided into classes and orders, just the same as are plants and animals and shells. Everything in natural history is divided and classed and described. The little black ant, and the almost invisible fly, have their names, and belong to their own class and order, as well as the brilliantly-coloured butterfly, and the grand and handsome moth.

In Great Britain there are many species of beetles. There are burying beetles, carrion, shroud, borer, stag, wood, and water-beetles. Of butterflies, quite eighty different sorts may be found with little difficulty; many moths also; flies out of number; and each little insect has its habitation and work; therefore, with a little study, any particular kind desired may be searched for and found; and the study and search are as interesting a work as any we can impose upon ourselves for healthful recreation and the gaining of useful knowledge.

As soon as the sun shines out, and pierces with his warm rays the little homes of insect life, the inhabitants peep out of their nests, and creep out of their winter beds, and begin to throw off their thick clothing for their bright and beautiful summer garbs; then the entomologist begins to watch the hedges, the grass, the brooks, the ditches, the trees and the flowers; and he walks out with his net, and his boxes, that he may catch and preserve the little creatures that attract so much observation for their beauty and their wonderful instincts and their habits, which even afford lessons to the intelligent beings who catch and fix them to the cabinet shelves.

Before we give any directions for catching and preserving insects, it will at least be necessary to mention that butterflies and moths are usually spoken of as *Lepidoptera*. That is the order they belong to; but there are various kinds or classes.

Coleoptera is the order to which beetles belong—insects with horny wings. Crickets belong to the order, *Orthoptera*; bees to *Hymenoptera*; gnats to *Diptera*, &c.

These few hints will, it is hoped, lead to a desire for further information. Meantime, a few words on the manner of catching and preserving insects may be serviceable.

The first instrument to be provided by the insect collector is a net; this he can make himself, and nothing serves better than a fishing-rod, even an old one will do very well. One that will allow of extension, will save the trouble of carrying a long rod of six feet, which length is necessary in order to catch some kinds of insects. When the rod is obtained, make a small hoop of cane, or firm wire, about two feet in circumference, and fix on it a green gauze net or bag, about half a yard deep, made very strong, so that no insect may escape. It must be sewn firmly to the hoop, by turning the gauze over the edge and stitching it tightly; and the hoop must be fixed to the pole or rod.

Another instrument for catching insects is made of two

flat square wires or canes covered with green gauze, fixed on two rods, held in both hands; and to catch insects between these two machines is much easier than with the bag. The gauze must not be fixed very tightly over the wire or cane, but left loose, in order to give room to the insect, and prevent it being crushed. This may be purchased.

Some insects fly higher than others; and to catch the beautiful purple Emperor butterfly, a rod more than six feet long will be found necessary; but experience will soon guide the entomological student as to the best ways and means for securing his treasures.

A pair of forceps for the purpose of gently lifting insects when settled on leaves, or for holding them with, to avoid the injury of pressure from the fingers, can be purchased at shops for the sale of articles used by naturalists; and little chip boxes (empty match-boxes for instance) must be taken by the collector in his case or leathern bag, to put the insects into, and thus preserve them from injury.

When the insects have undergone examination, and their name, class, and order, discovered by reference to a work on entomology, they will have to be killed. This renders the work disagreeable to some; but when we consider that they would not have lived many hours longer perhaps, or would have met their death by torture produced by a bird's beak or claws, or even the little mouth of another insect, we may feel satisfied that our own mode of killing may be after all almost an act of kindness; besides, their beautiful forms will be preserved and admired instead of destroyed.

There are many methods of killing insects; but that employed for stupefying bees when the hive requires attention, would be found a safe and humane plan for killing insects when death is desired. Bees are *stupefied* by intoxicating fumes, which if used too long, will *kill* them. The *Fungus pulverulentus*, or fuzz-ball, and the *Bovista gigantea* dried, are considered good fumigators for stupefying bees; but rags steeped in saltpetre and water, or tobacco leaves rolled up in paper and burnt, answer the purpose.

We are warned not to fumigate a hive too long, or the bees will die (see *HOUSEHOLD GUIDE*, vol. iii., page 351). Tobacco seems to be the fumigation most dangerous to the life of the bee; therefore tobacco fumigation, if used until the insect is dead, will be a safe and humane butterfly and insect destroyer.

There is a little apparatus that may be purchased where hives are sold, for the purpose of fumigating hives, which will serve admirably for killing insects. The fumigator is simply a rather small tin box, with a tube extending from each end; one tube to be inserted in the hive; the other tube attached to a common pair of bellows. The tobacco must be placed in the tin box, and set light to; and the tube inserted in the box containing the insects, through an aperture only large enough to receive the tube; the bellows must then be gently worked, and allowing the fumes to remain in the box for several hours, the insects will be found dead.

This method of destroying insects seems more humane than pinching them, or exposing them to the steam of boiling water, though all kinds of beetles or horny-winged insects are instantaneously killed if thrown into *perfectly* boiling water—a process which really seems to cause no pain, as the insect never moves after it touches the boiling water; but, doubtless, they may be deprived of life by fumigation, and simply sent to sleep, as well as any other insect; for no one who, by studying this beautiful portion of creation, discovers the purposes which insects fulfil in the economy of Nature, would without just cause destroy one of the interesting little creatures.

However, the insects we take the pains to find we desire to preserve, and they must therefore be killed, and then prepared for the cabinet; and the best plan to fix them is by inserting a small well-made pin (short whites) through the thorax, and into the cork with which the

lower part of the drawer or box should be lined ; but the legs of the insect must not be allowed to touch the cork. The wings, antennæ, and legs, should be arranged in their natural positions, and fixed by pins placed so as to keep them stationary (but not stuck through them) ; and when

will be found two of the most attractive divisions ; and some fine specimens will be readily secured in June, July, and August.

A brush dipped in spirits of wine, in which a little camphor is dissolved, will remove the mould with which a



CATCHING INSECTS BY NIGHT.

the insect is quite stiff and firm, it may be removed to its proper place in the cabinet.

Insects should be pinned on the cabinet drawer in columns ; the generic name being written above the column, and the specific name below the insect ; and each order should be arranged in a separate drawer ; a specimen of each order being at first secured as far as possible, and studied. The *Lepidoptera* and *Coleoptera*

dried insect may become covered ; but to clean it, the insect must be removed from the cabinet and allowed to dry previous to its being replaced.

Should insects assume an unsightly attitude through becoming stiff previous to being placed out, they will relax on being laid upon moist sand ; and camphor placed in the drawer will prevent the attacks of other insects, which may otherwise become troublesome depredators.

SOME NEGLECTED MATTERS IN CONNECTION WITH HOUSE DRAINAGE.

It is a singular fact that, although the greatest attention has, and most properly so, been given to the thorough and careful trapping of drains in order to prevent the escape of the foul air which is therein generated, very little attention is paid to keeping such traps in a condition which is essential to their proper action. (See article on "Sinks and Drain Traps," vol. iii., page 348.) Every householder knows that at certain periods the effluvia of the drains is unpleasantly perceptible in the house; and it often happens that, being unable to satisfactorily account for its escape, the bricklayer is called in, upon the supposition that the drainage arrangements are out of order. In very many cases, however, this is not the cause of the trouble; and we here propose showing from what cause the difficulty arises, and how the defect may be remedied. Before proceeding to do this, however, we must explain the system usually resorted to in order to "trap," or confine, the foul air in the drain or sewer, and prevent its escape into the house. It is

scarcely necessary to say how important a matter this is. It has been fully and amply proved that all or nearly all diseases are fostered, and many induced, by sewage contamination, either in the air breathed or the water used; and consequently this question of perfect exclusion of foul gas is really one which involves that of sickness or health, if not even of life and death. As we have before remarked, this fact has been fully recognised, and consequently trapping drains is now the rule. Yet, as we shall show, this is often effected in the most imperfect manner, one part of the drainage system being carefully closed, while another is left perfectly open, and free communication established between the sewer and the air. Unfortunately, the builder's science is often of the most imperfect character; and hence the drains of the house are frequently so constructed as to be at best but partially secured against the escape of the noxious gases evolved from the fermenting sewage matter.

The most usual form of drain-trap used to prevent this escape of foul air is that known as the "syphon," and shown in section at Fig. 1. This form of trap is generally manufactured in stone-ware, and can be obtained for about three shillings. Another is constructed of brickwork or stone, and is similar to that shown in Fig. 2. As will be seen from these figures, the principle involved is in both cases the same, and depends upon the immersion of the points A, A, in both figures, below the level of the water retained in the hollows, B, B, as shown by the dotted line in Fig. 1. Of course, as fresh water or sewage is poured in, it overflows the points C, C; but there is always enough retained to seal the drain and exclude the outrush of gas. Now nothing can be better than these traps, if properly managed and looked to, but this is very unfrequently done. Of course, where the drains are in constant use, the supply of water will be sufficiently well kept up to prevent its falling below the proper level; but in places

where there is an insufficient supply, as, for instance, in the openings used for draining a garden or forecourt, a couple of dry hot days will serve to dry up or evaporate the water so much as to leave open communication between the atmosphere and the sewer. Of course, it is precisely at these times that the escaping effluvia is most dangerous; and thus, from an unsuspected cause, illness may arise and spread through an entire family or district. The remedy is simple and obvious. Every day during hot or dry weather a pailful of water should be poured down every opening into the drain. This will ensure the proper sealing of the trap, and prevent both the danger and annoyance.

Another and very common source of trouble of this kind arises from the improper arrangements of waste pipes communicating with the water-closets and the cistern. It often happens that the cistern is erected inside the house; for instance, in the bath-room, on the first or second floors. In order to prevent any accident from the overflow of water, a large pipe is usually inserted, which is connected with the drains below. Now, in many cases which have come under our

notice, there has been a clear and uninterrupted communication between these two points, the result being, of course, a constant flow of foul gas into the tank containing water for the use of the household. It would perhaps be difficult to devise a more ingenious or effective method of impregnating the contents of the cistern with foul and offensive vapours; and the matter is one which should receive immediate attention. The

remedy is exceedingly simple. Either a proper trap should be inserted at the foot of the pipe before it enters the drain, or the pipe itself should be so bent as to retain sufficient water to occupy the whole of its internal diameter along some portion of its length. The angles need not be very sharp; a curve such as that shown in Fig. 3 will be ample to effect the required purpose.

A third defect, which is perhaps more common than

the last mentioned, is that of leaving at least one of the openings into the drains altogether untrapped. Builders seem to consider it useless or unnecessary to trap those parts of the drainage system which are not used for the purpose of carrying off offensive matters, forgetting that any opening will allow of the escape of noxious gases from the sewer. Hence it happens that the pipes erected for carrying off the rainfall from the roofs are left open, and these, being mostly of large dimensions, serve as ducts, which carry offensive odours into the air, and frequently into the house. Very frequently these rain-pipes meet in hoppers in immediate proximity to the windows, and an offensive odour is clearly perceptible when the windows are opened. Of course, this is practically equivalent to having an open drain in the room; and, as the upper portions of the house are usually used as sleeping apartments, the matter is one of the utmost sanitary importance. The remedy in this case, as in that before mentioned, is simply to have a proper trap placed between the rainfall pipe and the drain.

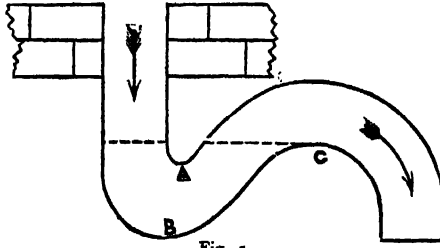


Fig. 1.

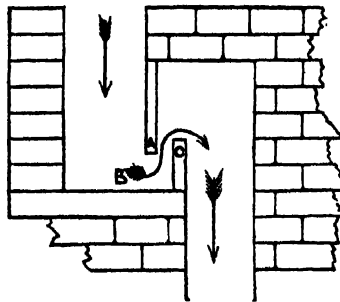


Fig. 2.



Fig. 3.

It is very singular that these defects have been so long left unnoticed, especially in a city like London, and by public officers. Yet in a recent visit to a populous suburb we found that through an entire district there was not one of the street drains which contained sufficient water to properly trap it. The matter is one of the utmost importance to the whole community, and we therefore urge that it may at once receive the attention it merits from the readers of the HOUSEHOLD GUIDE.

HOW TO CUT AND MAKE WALKING-STICKS.

In setting before the amateur instructions which have successfully guided many, both in England and Scotland, to make their own walking-sticks, we shall endeavour to do so in the simplest possible manner, and to speak of using such tools and materials as every one can easily obtain, if they are not already in possession of such. Some hints on the subject have already appeared in a previous part of this work.

And, first, as to the instruments and materials required. A good, large, single-bladed knife, which costs one shilling to one shilling and sixpence; a small saw, to go in the inside pocket of coat, one shilling to one shilling and sixpence; shellac varnish in bottle, made with twopenny-worth of pale shellac in half a gill of methylated spirits, and left over-night to dissolve; half a gill of pale, quick-drying copal varnish, which will cost something under sixpence at a colourman's; some broken crown or sheet glass, for scraping; glass-paper, coarse and fine; two small tin dishes (lids of mustard canisters will do), for holding the varnish while being used, one for copal the other for spirit; a rasp, or coarse file, and a fine one for rounding off knobs and heads whilst shaping. Though not essential, still, a hand-vice, or one to be fastened to a kitchen table, the latter kind not costing more than seven or eight shillings, assists very materially in the shaping of heads.

The best time of the year to cut sticks is in winter, when the circulation of the sap is dormant, but, with reasonable precautions, especially if they are to be barked, they may be cut at any time, even in midsummer. Those that are intended to have the bark on should, however, if possible, be cut in cool weather, to prevent the shrivelling of the bark, which spoils the appearance of many sticks.

The likeliest localities to find sticks, and where one will be permitted to cut them, are the sides of old, disused roads, commons, sides of ponds, lakes, and streams; and the richer the soil in which they are the straighter the growth. Be careful never to cut anything that is valuable, or that may prove valuable as timber.

When we have reached a locality where the bushes give evidence of yielding a stick or two, search should be made for such as are straight, or nearly so, and without knees. Such only can prove available to the limited means for straightening at the command of the amateur. The next point is to examine if a head can be got on each one that is selected as being straight enough. The material out of which the head is made must either be the root or a larger branch out of which the stick grows. There is very little use in attempting to boil heads and twist them, as even after being rounded they are very much inferior in look and "catch" to knobs, or square heads, straight off the stick, or at a slight angle up or down.

Should the root or larger branch promise a head, the knife may be used in severing the small roots, and then saw the main one. It is sometimes easier to cut the stick to length and trim it previous to cutting it at the root or from the main stem, as it is then more rigid.

In order to prevent pricking and scratching the hands, a pair of old gloves prove very useful when getting the stick out of the ground and trimming the branches.

The first process is to cover over those places that have been cut, the head in particular, with a coat of thick shellac varnish. Indeed, if the spot is large, the varnish may be poured over, and this will give a coating which will effectually prevent the stick cracking, as it would most likely do, especially in hot weather, if not covered in from the air. We now lay them flat in a cool place, and after the lapse of three or four days examine them, and those that are not quite straight we make so with both hands, or over the knee, and put them back again, repeating this for two or three days, until the desired position is kept. Those that are rather thick or unmanageable in regard to straightening may be tied with rag or tape (string or rope will mark) to a rigid stick, a clothes-prop, or iron rod; or, if thoroughly dry, they can be held before a very strong fire for a few minutes till very hot, when, upon being withdrawn and bent into proper position, and so kept till cool, they will retain it. "Shop" sticks very often lose their normal straightness, and such can be brought back by the same method.

Should cracks occur in the head during the seasoning or straightening they can be filled up with gutta-percha or a composition of resin and beeswax, melted in an iron spoon, and coloured to resemble the stick, and this can easily be done so well as to defy detection. Should the crack admit of such, a slip of the same kind of wood may be neatly and closely inserted with glue or gum, previous to varnishing.

The varieties that can be recommended are first those that are made with the bark left on, as hazel, whitethorn, hawthorn, sloe or blackthorn, brier or wild rose, laburnum, rowan or mountain ash, common ash, oak, broom, barberry, crabtree, and wild cherry. For alpenstocks, the best is hazel, with light-coloured bark.

Those that can be barked are whitethorn, blackthorn; brier, common ash, broom, whin or gorse, oak, barberry, holly, juniper, and lilac.

Brier can be treated a third way, and that is by removing the upper bark and leaving the inner one, which, by proper treatment, to be noticed afterwards, looks not unlike partridge cane.

And here it may be proper to mention staining and colouring materials, which are used, if thought desirable, previous to varnishing. Sticks that are to have the bark left on, when it has become shrivelled may be made to look very well by having the ridges filed and smoothed, and a little dragon's-blood, turmeric, or saffron, mixed with the first coat of varnish, applied equally over the bark. For instance, on common ash a little turmeric or saffron will often produce a fair imitation of orange-tree, and dragon's-blood will metamorphose a whitethorn into a "real Milesian blackthorn." Sticks that have had the bark wholly removed may be stained a rich brown colour with the following mixture, applied with a soft rag tied on the end of a long penholder:—One teaspoonful of ground logwood in a teacupful of water, cold or hot, with a piece of washing soda the size of a hazel nut, allowed to stand for two or three days-exposed to light. Black may be got by applying on the top of the foregoing iron liquor, which may be bought of the chemist, or made by allowing a few nails to be dissolved in strong vinegar, acetic, or pyroligneous acid.

When brier is half-barked, it may be darkened by rubbing with lime-water, or by thrusting the stick into a heap of mortar, withdrawing it in a few minutes, and allowing the lime to act on it for a night, wiping all traces of it carefully off before varnishing.

If the bark is to be left on, file the knots, shape the head, fill up cracks, and smooth the bark lightly with glass-paper. If the bark is to come off, do so first with the knife, then scrape with glass, file knots, shape head, and finish with coarse and fine glass-paper. Then stain, and, lastly, before varnishing, rub the wood hard with a

piece of polished iron or steel, such as a key, or the back of a knife, and this will improve it very much in polish, closing up the pores of the wood, and saving varnish.

"Artificial" sticks may be made out of slips of oak, hickory, greenheart, ebony, &c., rounded and tapered, and heads fitted on by having a recess drilled out with brace and bit or burnt out to fit firm on end of stick, and glued on. Deerhorn, bone, or ivory heads may be bought, but stronger ones can be made out of "knees" of thorn, brier, or holly, seasoned for several months, and thoroughly dry when put on. Silver or plated ferules can be put round to hide the junction of head and stick, or a little silver strap can be pinned on after the head has been fastened on. These sticks may be of their natural colour, or stained black, to imitate ebony.

Supposing the smoothing to be thoroughly finished, varnishing comes next. The first coat given is shellac varnish, put on as thinly and evenly as possible with a brush, or, what does quite as well, with the "cushion" of the forefinger of the right hand. Allow this coat to dry for half an hour, and then put a monogram on the head if desired, or the date and place of cutting, with ink, which will not "run" now, because of the first coat of varnish. We next apply the copal varnish in the same manner, as thinly and evenly as possible, and lay the stick aside to dry for two or three days.

A very convenient arrangement is to insert nails near the top of a large airy cupboard or press, by which means several can be drying at one time. After the second coat is quite dry, the stickiness so often felt in copal varnishing may be entirely removed by giving as a third coat the thinnest possible layer of spirit-varnish, and an extra coat of spirit-varnish after that for the head; and, when the stick requires it, give a thin coat of spirit-varnish all over, to keep it tidy and bright, especially on the head, which wears, as might be expected, more quickly.

And, last of all, to finish, it is necessary to have the stick feruled. Ferules can be bought for one penny or three-halfpence each retail, or ninepence a dozen, assorted sizes, at umbrella shops; or, ordered at a coppersmith's, they can be made very strong with steel point. Should it not be quite convenient, however, to get them, old gas-tubing may be cut up with the sharp edge of a file, and fastened by hammering tightly on. Alpenstocks are best feruled with two or three inches of good brass tubing, and a large bradawl, with about an inch or so of the blade left on, hammered in as a pike to catch the ground.

And now, in conclusion, a few remarks on the merits of the different sorts that have been already mentioned. Hazel grown in low districts is usually dark-coloured in the bark, and not so highly esteemed as the light-coloured variety, which grows chiefly in Wales and the Highlands of Scotland. Whitethorn, if peeled soon after cutting, has yellow lines marking the circulation of the sap, but these can be scraped off. Blackthorn with the bark off makes the finest "white" thorn, but they are most valued with the bark on, the knots closely set, and triple spikes, if possible, at every knot. Brier is the most easily got of all the varieties, and it is remarkably strong. Should it not taper enough, it may be reduced so as to give it the shape. Those that grow on a breezy hill-side often rub against their neighbours, thereby producing eccentricities which improve the sticks by "individualising" them. Rowan, or mountain ash, makes a good tramping stick, though it has not much appearance, and, with common ash, it has the property of not firing delicate hands. Common ash shooting from an old stem, when thoroughly smoothed and varnished, shows fine silky threads streaking its white surface. Broom and barberry have the prettiest barks, both as regards streakings and colour, and both can be stripped should it be injured. Oak, unless a shoot from an old trunk, is not worth the

trouble of making into walking-sticks. Gorse or whin gives by far the prettiest markings of any barked stick, and is remarkably strong.

CREAM DAINTIES.

Junkets.—Put some rennet into some warm new milk, and let it get cold. Then throw some crushed lump-sugar on it, with a little powdered cinnamon, and pour some cream over it.

Burnt Cream.—Beat four or five eggs up in a stewpan with some flour, and gradually add to them a quart of milk. Then add a little ground cinnamon, with some dried and also some candied lemon-peel cut in small pieces. Place a pan over a gentle fire, and simmer the contents, taking care to stir them continually while on the fire. When ready, pour it into a dish, and bake it in an oven until the contents adhere to the sides of the vessel, and then cover the surface with powdered loaf-sugar.

Rice Cream.—Mix four handfuls of ground rice, and half a pound of sugar, in two quarts of milk or cream, together with two raw eggs beaten up. Thicken them in a saucepan over a quick fire, stirring them continually.

Cream Toasts.—Cut a pound of French roll in slices as thick as a finger, and lay them in a dish. Pour over them half a pint of cream, and a quarter of a pint of milk, and sprinkle some crushed lump-sugar and cinnamon on their surface. When the pieces of bread are soaked in the cream, remove them, dip the slices in some raw eggs, and fry them brown in butter.

Chocolate Cream.—Simmer a quart of milk with a quarter of a pound of loaf-sugar, for a quarter of an hour, and then add some raw eggs beaten up, and a sufficient quantity of chocolate to flavour it.

Cream Cheese.—Take four quarts of new milk, and one quart of cream, together with one pound of almonds beaten up, half an ounce of powdered cinnamon, and one pound of loaf-sugar. Curdle the milk by the addition of some rennet, and having drained away the whey, compress the curd into a solid mass.

Lemon Cream.—Peel three lemons, and squeeze out the juice into a quart of good milk: add the peel cut in pieces, and cover the vessel for a few hours. Then add some eggs beaten up, and a pint of water well sweetened. Strain the milk, and simmer it over a gentle fire until it becomes of the consistence of cream, and pour it into jelly-glasses.

Italian Cream.—Boil two quarts of milk, with sugar, salt, and some ground cinnamon. Then pour it into a dish, and mix with it about ten raw eggs beaten up, and bake it in an oven at a moderate heat. This dish will be much improved by the addition of a little cream.

Maiden Cream.—Beat some raw eggs into a froth; put them in a saucepan with milk and sugar, and a little cinnamon to flavour it, and pour it into a shallow dish, and bake it.

Sherry Cream.—Simmer a pint of cream; add to it gradually three spoonfuls of sherry wine, and then stir it continually that the cream may not curdle. Afterwards flavour it with sugar, cinnamon, and nutmeg.

Orange Cream.—Take half a dozen oranges, grate the peel into a pint and a half of water, and beat up with it four eggs. Sweeten the liquid, pass it through a strainer, then simmer it until it becomes of the consistence of cream, and pour it into glasses.

Hasty Cream.—Take a quantity of milk, fresh from the cow if possible, put it in a pan over a moderate fire, until it begins to boil, then take it off, and put it on one side until a quantity of cream collects on the surface. Remove this, and put it in a dish. Repeat the boiling, and again remove the cream from its surface, until the whole of it has been taken away. Then sweeten it with loaf-sugar, and send it to table.

ODDS AND ENDS.

Artificial Gold.—Alloys are sometimes passed off as native gold, and represented to be the produce of Californian and other mines, which do not contain one grain of the precious metal, but merely resemble it in colours and lustre so long as they remain untarnished. A very good imitation has been produced in Paris, of which the materials and proportions used are as follow:—Pure copper 100 parts; zinc, 17; magnesia, 6; sal ammoniac, 3'60; quicklime, 1'80; tartar, 9. The copper having been first melted in a crucible, in a suitable furnace, the magnesia, sal ammoniac, lime, and tartar are added, separately and by degrees, in the form of powder. The amalgam thus produced is then stirred for about half an hour, so as to mix thoroughly the ingredients. The zinc is next thrown on the surface, having been first ground very finely, and the stirring is continued until fusion is complete. The crucible is then covered, and the fusion continued for about thirty-five minutes, when, having been uncovered and well skimmed, the metal is run into a mould of moist sand or metal. After this operation the material may be exposed to a high degree of temperature, and cast into whatever ornamental form is required. This metal is very fine in the grain, and is also damascene, malleable, and capable of being polished to a great degree of brilliancy. When tarnished by oxidation, it may be restored to its original brilliancy by the application of a little acidulated water. A still more brilliant alloy may be produced by employing tin instead of zinc.

The Colouring of Gold.—Ornaments of gold receive different shades of colour from the jeweller, who exposes them to the action of chemical agents, which very slightly affect the gold, whilst they dissolve out from the surface a portion of the copper and silver alloy. Thus, although there may be below the surface of the ornament a considerable quantity of silver and copper, yet the surface itself has the appearance of pure gold. Thus will be seen the impossibility, even for the most experienced and best judge of gold, of purchasing articles of jewellery by appearance; and the advantage of purchasing of a jeweller of reputation and respectability is fully illustrated.

Another Method.—Among the many receipts for giving colour to gold, in use among the French jewellers, is a mixture of two parts nitrate of soda, one part Roman alum, and one part chloride of sodium, or sea salt, in three or four parts of water. A quantity of this mixture, about three times the weight of the jewels which are to be coloured, is taken, and a concentrated solution made with boiling water. After being kept in this solution at the boiling point from fifteen to twenty-five minutes, according to the shade required, the jewels are taken out, washed in water, and the operation is complete. The surface of the gold has then become perfectly uniform, though dull, and capable of being made brilliant by burnishing. The pickle, or sauce, as the liquor is termed, dissolves not only the copper or silver alloy on the surface, but likewise a proportion of the gold itself, so that the articles lose about one-sixteenth of their weight by the process.

Spruce Beer.—Dissolve sixteen pounds of treacle in eight gallons of boiling water. Run it into a cask, add another eight gallons of cold water, and half a pint of yeast, with six tablespoonfuls of the essence of spruce. Let them ferment in a warm place for two days, remembering to have the bung of the cask open, so as to admit the air, and then either bottle the beer or close the cask.

To Ascertain whether Beds are Damp.—After the bed has been warmed with a warming-pan, place a drinking-glass between the sheets, and allow it to remain for a

short time. If any damp is present, the inside of the glass will be found covered with a dew, caused by the condensed moisture.

How Wood Decays.—When wood is exposed to the combined action of air and moisture, it absorbs oxygen and decays with the production of water and carbonic acid gas, these products being produced by the union of the oxygen of the atmosphere with the carbon and hydrogen contained in the wood. When, however, the wood is immersed in water, so as to be entirely excluded from the atmosphere, although the wood still decays, carbonic acid alone is found. The principal cause of the decomposition of wood is the albumen it contains; for it is found that the wood of those trees which, like the acacia, have but little of this substance in their composition possess great durability. The albumen in the wood not only acts by becoming putrescent, owing to the nitrogen it contains, but it also serves to supply the insects which attack it with their food—these creatures, by perforating its substance, and admitting the air and moisture, tending still further to promote its decay.

To Remove Stains from Black Cloth, Silk, &c.—Rub a handful of fig-leaves into a quart of water, and simmer them down to half. Put the leaves into a cloth, and squeeze out the liquor, which should then be poured into a bottle for use. The liquid should be applied with a soft sponge, and gently rubbed until the stains are removed.

To Stain Bone or Ivory Red.—Dip the article for a few minutes in nitric acid (aqua fortis), and then immerse it in a liquid prepared by boiling some cuttings of scarlet cloth in water, with a little cream of tartar.

A French Way of Removing Ink Spots from Linen.—Melt a little fat, and dip the stained portion of the linen into it. When the article is washed, the stain will disappear.

An Easy Way to Clean Silver Articles.—Set fire to some wheat-straw, collect the ashes, and, after powdering it, sift it through muslin. Polish the silver plate with a little of it applied to some soft leather.

Composition for Cleaning Brown Leather.—Mix two drachms of muriatic acid, the same quantity of spirits of lavender, and the juice of one lemon with half a pint of skimmed milk, in which half an ounce of gum arabic has been dissolved. To use this liquid, the leather should be previously washed in soap and water, and the composition then rubbed over it with a sponge. The leather should afterwards be polished with flannel.

To Render Boots and Shoes Waterproof.—A good composition for winter use, when it is desired to make boots proof against snow and wet, is composed of one part mutton suet and twice that quantity of beeswax, melted together. It should be applied to the leather at night, and the boots wiped with a flannel next morning. Although when the composition is first applied the leather will not polish as well as usual when blacked, yet they will be susceptible of a brilliant polish after the blacking has been applied a few times. The following composition not only renders the leather capable of resisting wet, but also makes it more pliable, softer, and more durable. Dissolve half an ounce of Burgundy pitch in half a pint of drying oil mixed with half an ounce of turpentine. To use this fluid the boots should be made slightly warm before the fire, and then painted over with the composition by means of a soft brush. Then allow them to dry, and paint them over again with the liquid. The boots should then be placed in a warm and dry place until perfectly dry. Another composition of a similar kind is made by dissolving an ounce of powdered resin in a quarter of a pint of linseed-oil made hot over the fire in a pipkin. Then add two ounces of mutton suet, from the kidney, chopped up small, and simmer until the materials are well mixed. This composition is applied like the last, but does not require a second application.

PROTECTION FROM FIRE AND BURGLARY.

FIRE AND THIEF ALARUMS.

WITH inventions for the detection or prevention of burglary or accidental fires modern ingenuity has busied itself to a very considerable extent. In the records of the Patent Office contrivances for these purposes are to be found specified by the hundred, and in many of them much mechanical cleverness is shown. The earlier alarums, as applied to the detection of burglary, generally consist of variously modified arrangements of strings or wires attached to the different doors and windows of the house, which, on being displaced by the entrance of the thief, are so contrived as to ring bells or fire off guns, for the purpose of arousing the inmates. Some are, however, more maliciously designed. Tysack's alarum (the earliest on record) threw out a hook to lay hold of the intruder; while Jorden and Cooke's (1814) received him still more inhospitably, with a shower of broken bottles and stones. Pistols and guns, to be fired at the burglar, are by no means an uncommon feature; but perhaps the most unpleasant contrivance of all (a recent one, of French invention) made itself yet more disagreeable by a discharge of Greek fire. Among the alarums of the present century the detonation of a percussion-cap, as a means of discharging firearms, has been a favourite method. In Lee and Smith's alarum, however, a lucifer-match was struck, by a lever being released by the entrance of the thief, and a jet of gas was turned on and lighted, or, in the absence of gas, a candle, this illumination being accompanied by the beating of a gong.

Most of these inventions were also intended to raise an alarm of fire, and this was generally done in a somewhat primitive manner, by thin strings, which, when burnt through, allow the bell or other signal to sound. William Stedman, however, in 1787, produced a "philosophical fire alarum," which was really ingenious, and which displays the germ of the utilisation of that principle which forms the basis of the more effective fire alarums of our own day—namely, that of the tendency which all bodies have to expand when heated. It comprised a tube with a bulb at its bottom filled with mercury; and when, owing to the near vicinity of fire, the mercury expanded, it necessarily overflowed, till, as the heat grew intense, it became so light by this means as to allow a spring, which its weight had previously kept down, to fly up and set in motion the connecting apparatus, which either discharged a gun or rang a bell.

Ingenious also were some of the alarums in which clock-work was employed, such as that known twenty years since as the "property protector." This consisted of a revolver whose chambers were successively discharged at regular intervals, by a lever fitted to an escapement-wheel. The property-protector was, however, rather intended to scare away the thief from premises upon which no person was left in charge, than to give intimation of his presence.

But, interesting as are these contrivances, and though some of them might doubtless, to a great extent, have answered the purpose for which they were designed, had a full trial and the labour of successive minds been given to them, none of them ever came into general practical use; and although up to the present day inventions of the same nature are still occasionally brought before the Commissioners of Patents, those alarums which have at present been found to do substantial service, and which we must look to as likely to be in common use in the future, are founded on a different and more simple principle, namely, that of electricity.

The electric fluid, as is well known, travels in a circuit only, and requires that the circuit along which it passes

should be formed of one of those substances known as "conductors," of which the metals are the most perfect. In passing along its circuit, the fluid can readily be made to ring a bell, or to give a signal in many different ways. It follows, therefore, that if the house be provided with a battery for the production of the electric fluid, and a circuit for its current be so arranged as to be in its normal state incomplete, but capable of being made complete by the entrance of a burglar or the breaking out of a fire, an efficient alarum will have been produced. The same end may also be effected by a completed circuit, which will give no sign till interrupted by either of the above causes, when the alarm will be given. It was, therefore, justly argued that if the mechanical appliances necessary for carrying out this principle were properly constructed, the best means of raising an alarm would have been arrived at. Many contrivances for perfecting it have been designed; it is found, however, that the first method, that of giving the alarm by completing the circuit, offers the fewest obstacles in practice.

In an electric alarum it is usual to place the battery in some part of the house where its presence will be no inconvenience, and to arrange wires to serve the purpose of conductors, passing from it to the various rooms, as well as to the bell or other signal. These wires are so placed upon the doors and shutters as to have their connection broken when the doors or shutters are closed; but, in the act of opening, a metal pin, joined to the wire on one side, and fixed upon the door, comes in contact with a second, terminating the corresponding wire fixed upon the framework. The circuit is thus completed, and the alarm is given. The arrangement for giving an intimation of fire is somewhat more complicated and subtle.

When we spoke above of Stedman's invention, we mentioned that the fact of bodies expanding when exposed to heat formed the basis of all the modern fire alarums. This principle has been applied to the electric systems with various modifications. We believe that the earliest electric alarum was that introduced in 1847 by Mr. Rutter, and in this the completion of the circuit was obtained and the alarm of fire given by means of a vessel of mercury, which, when the temperature of the room in which it was placed grew excessive, came by its expansion in contact with a small metallic wire. Some of those now made act by the expansion of air confined in a cylinder, which in case of fire forces up an india-rubber-covered piston; some have a tongue of highly sensitive metal which expands, and others are still made with mercury; but the principle of all is alike, namely, that of making some solid or fluid when expanded by heat fill up a space left in a circuit of metallic wire. In all alarums an arrangement is made by which, as by pulling a handle and removing a piece of metal, the contact of the wires can be completely severed at some point, and the circuit thus altogether broken. At night, or whenever it is required to act, the alarum is set by moving the handle and completing the contact at this point.

The first electric alarums were, as might have been expected, too complicated and too liable to get out of order to be of much real practical use, but in all essential points they were nevertheless sound and practicable. Much attention has since then been given to the simplification and perfection of the various details, and, though further improvements will no doubt be still introduced, all difficulties have been sufficiently overcome to make them fully answer the proposed end. The wires can be so fixed as almost to escape observation and to act with certainty. Batteries are now made which will keep up the electric current for a great length of time—some of them from twelve to twenty-four months, and which are so simple that the re-charging of them may safely be left to a servant girl.

It would appear that the value of electric alarums

requires to be more generally known, for they are as yet rarely to be met with in ordinary houses, although they are becoming comparatively common in large mansions and institutions.

Undoubtedly, in many cases, the expense attending the erection of an electric alarm prevents its being employed. These things are, it must be acknowledged, somewhat costly; but this is, as the electricians themselves acknowledge, chiefly owing to their not being more commonly used. The apparatus employed is of by no means a costly nature, and might be sold at far lower prices if the demand for it were large enough to admit of its being manufactured in large quantities, since it is upon this point that the question of cost in workmanship in all manufactured articles really hinges.

There are circumstances, however, under which the electric alarm may be introduced with little outlay, namely, when the house is provided with electric bells instead of those of the ordinary kind. The electric system of bell-hanging is in principle almost identical with that of the electric alarm itself. A battery has to be provided, which is generally connected by wires with a single bell in the kitchen or servants' room, and with the door and the various apartments. The ringing of the bell is effected by the completion of the electric circuit, which is accomplished by bringing the wires in contact, sometimes by means of a pull like that of the old-fashioned bell, or, more frequently, by a button to be pushed. The electric bell has some decided advantages over the old one. The wires are more easily kept in repair, since, being themselves fixed, and having no movable cranks, it is scarcely possible that they should become deranged or broken; being fixtures they can, moreover, be made less unsightly than ordinary wires. The cost of electric bells is rather less than that of ordinary ones in large houses, and rather more than in small ones; for the prime cost of the battery, tablet, &c., does not greatly vary whether few or several pushes be attached; while, therefore, the first bell would alone cost from three to five pounds, about thirty shillings each would pay for any additional ones. When the battery and wires are once fixed, rendering them available for the purpose of an alarm becomes only a matter of a few shillings; attaching wires to the doors and shutters will be but a mere trifle, and the cost of a fire-thermometer will only vary, according to description, from about five to fifteen shillings.

CHRISTMAS DISHES.

Plum Porridge or Broth was the forerunner of plum pudding. It was once in great repute as a favourite Christmas dish. It must have been a complicated mixture of savoury and sweet, and was thus made in the time of Queen Anne:—Take a leg of beef and a piece of the neck, and put it into three or four gallons of water, boil it four hours, and then put in two pounds of currants, three pounds of raisins of the sun, and three pounds of stewed prunes, and let them boil one hour; then force through a cullender two pounds of stewed prunes, grate a twopenny white loaf, mix it with some of the broth, and add to it the pulp of the prunes, one ounce of cinnamon, half an ounce of nutmeg grated, and a quarter of an ounce of beaten cloves and mace. Put all these into the broth; let it boil a quarter of an hour, stirring it lest it burn; then put in a quart of claret and half a pint of sack, and sweeten it to your taste. Put in a little salt; then have some white bread cut in dice, which put into the basin or tureen. Lay in the middle a piece of the meat, and put in the broth.

Two centuries ago every well-to-do family made a Christmas pie or shred pie, "a most learned mixture

of neats' tongues, chickens, eggs, sugar, raisins, &c." They ought to be confined to the season of Christmas. No modern receipts are similar, and the less meat they contain the better. The following is a well-tryed and much approved one, and has been handed down in the same family for generations:—"A pound of beef suet, chopped fine; a pound of raisins, stoned; a pound of currants, cleaned dry; a pound of apples, chopped fine; two or three eggs; allspice, beat very fine, and sugar to your taste; a little salt, and as much brandy and wine as you like." A small piece of citron in each pie is an improvement.

Raised Pies for Christmas.—To make the paste for raised pies, put two ounces of butter into a pint of boiling water, which mix while hot with three pounds of flour into a strong but smooth paste; put it into a cloth to soak until nearly cold; then knead it, and raise it to the required shape. To raise a pie well requires considerable practice. It is best done by putting one hand in the middle of the crust, and keeping the other close on the outside, till you have worked it into the round or oval shape required. The lid is then to be rolled out. For these pies, the poultry and game should be boned and highly seasoned with salt, pepper, and very little pounded mace; the bird should then be put into a dish or raised crust, and the space round it filled with savoury forcemeat; butter should then be spread on the top, the cover put on, and the pie baked till done, when it should be filled up with richly-flavoured gravy and jelly. With the addition of green truffles, and the breast being lined with bacon, the above will closely resemble a Perigord pie. Raised pies should be served on a fine napkin. The top of these pies are mostly used as covers, to be taken off when brought to table, and put on when removed, so that they should be made with a knob or ornament to serve as a handle.

For a raised pork pie, make a raised crust from three to four inches high; pare off the rind and remove the bone from a loin of pork, cut it into chops, flatten them, and season them with chopped or powdered sage, black pepper, and salt, and pack them closely into the crust; then put on the top, and pinch the edge; brush the crust with yolk of egg, and bake two hours in a slow oven. When done, remove the lid, pour off the fat, and add some seasoned gravy; or the pork may be put into a dish, covered with crust, and baked; or it may be cut into dice and seasoned. When a hog is killed, this pie may be made of the trimmings; but there should be no bone, as the meat must be packed closely, fat and lean alternately.

For a raised ham pie, soak a small ham, boil it an hour, cut off the knuckle, then remove the rind, trim the bacon, and put it into a stewpan, with veal gravy and white wine to cover it. Simmer it till nearly done, when take it out and let it cool. Then make a raised crust, spread on it some veal forcemeat, put in the ham, and fill round it with forcemeat, cover with crust, and bake slowly about an hour. When done, remove the cover, glaze the top of the ham, and pour round it the stock the ham was stewed in, having strained and thickened it, and seasoned it with cayenne pepper.

For a raised pheasant or partridge pie, cut up two pheasants or partridges, and fry them lightly in butter with a few spoonfuls of mushrooms, truffles, parsley, and very little shallot, seasoned with pepper and salt. Then line a raised crust with veal forcemeat, to which have been added finely-chopped truffles; put in the joints of the pheasants or partridges when cold—first the legs and rumps, next four truffles cut asunder, then the fillets and breasts, and more truffles—add the seasoning in which the birds were fried, and cover with slices of fat bacon and paste. Bake the pie in a quick oven an hour and a half, and when done remove the cover and skim off the

fat, and pour in brown sauce, with finely-minced truffles, and serve without the cover.

For hare pie, cold, cut up the hare, season it with pepper and salt; prepare a forcemeat with the parboiled r of the hare, shred bacon, minced sweet herbs, onion, pepper, and mace. Make it into balls, which lay with sliced hard-boiled egg-yolks between the joints of the hare. Bake it in a dish or raised crust, and when cold fill up with savoury jelly.

For pigeon pie, stuff four or six pigeons with a forcemeat of parsley, bread-crumbs, and butter, seasoned with pepper and salt. Lay them in the dish breast downwards, upon a rump-steak, adding the yolks of four or six hard-boiled eggs and a gill of water. Lay on the top another steak, cover with puff-paste, brush it over with the yolk of egg, and put in the centre of it three neatly-trimmed feet of the pigeons, or one foot on each side. Bake about an hour. Or the stuffing may be omitted, and the pigeons cut in halves.

Mince-meat.—Take four pounds of raisins, stoned, and four pounds of currants, washed clean, four pounds of apples, six pounds of suet, and half a fresh ox-tongue, boiled, half a pound of candied orange-peel, ditto candied lemon, and a quarter of a pound of citron, all chopped; the juice of three oranges and three lemons, with the peel of two grated; half a pound of moist sugar, two glasses of brandy, two of sherry, one nutmeg grated, a spoonful of pounded cinnamon, and half an ounce of salt. Mix all these well together, put the whole into jars, and keep it tied over with bladder. A little of this mixture baked in tart-pans with puff-paste forms mince-pies. Or peel, core, and chop finely a pound of sound russet apples, wash and pick a pound and a half of currants, stone half a pound of raisins, and let both these be chopped small. Then take away the skin and gristle from a pound of roast beef, and carefully pick a pound of beef suet; chop these well together. Cut into small pieces three-quarters of a pound of mixed candied orange, citron, and lemon peel; let all these be well stirred together in a large pan. Beat or grind into powder a nutmeg, half an ounce of ginger, and a quarter of an ounce of cloves, the same of allspice and coriander seeds; add half an ounce of salt, and put these into the pan, mixing them thoroughly. Grate the rinds of three lemons, and squeeze the juice over half a pound of fine Lisbon sugar, mixed with the lemon peel; pour over this two gills of brandy and half a pint of sherry. Let these ingredients be well stirred, then cover the pan with a slate; and when about to use the mince-meat take it from the bottom of the pan. Or, to make mince-pies *without meat*, carefully prepare as before directed a pound and a half of fresh beef suet, and chop it as small as possible; stone and chop a pound and a half of Smyrna raisins; well wash and dry on a coarse cloth two pounds of currants, peel, core, and cut small three pounds of russet apples; add a quarter of an ounce of mixed cinnamon and mace in powder, four cloves powdered, a pound and a half of powdered sugar, a teaspoonful of salt, the juice of a lemon and its peel finely grated, and a tablespoonful of mixed candied fruit cut very small. Let all the above be well mixed together, and remain in the pan a few days. When you are about to make mince-pies, throw a gill of brandy and the same of port wine into the pan, and stir together the mince. Line the required number of patty-pans with properly-made paste; fill from the bottom of the pan, cover, and bake quickly.

Lemon Mince-meat is made as follows:—Peel thinly two lemons, and boil the peels till tender enough to be beaten into a paste; to which add four sharp apples, peeled and chopped, half a pound of chopped suet, one pound of currants, and half a pound of good moist sugar. Mix the whole well together, adding the juice of two lemons, and two ounces of candied orange, lemon, and citron peel, cut small.

PORTMANTEAUS AND TRAVELLING-BAGS.

THE modern facilities for travelling have called into existence a great number of convenient and useful descriptions of portmanteaus and travelling-bags of various designs and dimensions. In these articles, owing to several reasons, our English manufactories are able to produce goods which are much superior to any that can be imported from abroad, although some of the inferior descriptions of bags are brought into this country from France, and more especially from Germany, and have a considerable sale, on account of their greater cheapness. This is the result of the lower value of skilled labour in foreign countries; and if the very best style and the greatest endurance are not desiderata, an advantage may sometimes be gained by purchasing these things. The special superiority of the English makers in the heavier class of goods is chiefly to be attributed to the greater development of the papier-mâché manufacture in this country—that article being largely used to strengthen the less expensive sorts of portmanteaus—and to our greater proficiency in the art of tanning, which enables us to produce better leathers for those of the more costly description, which are formed exclusively of that substance.

The materials chiefly used in this manufacture are the leathers known as basil—which is a tanned sheep-skin—cowhide, and morocco, which is goat-skin dressed in a peculiar manner with sumach, and the surface of which is marked with the graining so well known by having little engraved balls of boxwood rolled firmly over it by the workman. Pig-skin, which is, from its fine appearance sometimes used, is not considered to be so good for the purpose as any of the above. Less expensive than leathers are American leather-cloth, which is made of a variety of qualities, and which is therefore widely distinct in its powers of endurance, although even in the best far inferior to real leather, of which it is an imitation; and sail-cloth, which although it does not possess the enamel and consequent brilliancy of American cloth, is far better suited to stand the rough usage to which all travelling packages are exposed, and is consequently a material to be highly recommended for foreign travel, or whenever lightness and moderate cost are important considerations.

In the manufacture of a portmanteau the pieces of leather are first cut out, and brought to the necessary degree of stiffness by being saturated with paste. A solid leather portmanteau, which is the most expensive and best, is made exclusively of cowhide, and from the strongest and most valuable parts, viz., from the shoulders and belly. But those which are made of thinner and inferior leather, such as the poorer cowhide or basil, require to be strengthened by being pasted upon millboard or strawboard. In good articles this is made, like brown paper, from hemp, such as old ropes or old sails; but in inferior articles the cheaper board made from straw is frequently used, which is, on account of its brittleness, less suited to the purpose. Sometimes, more especially in hat and bonnet boxes, of which the outer covering is usually basil, a thin board of real wood, technically known as scale-board, is used for strengthening. When the different pieces are stiffened and set, the locks are riveted on; the straps, which are, for the sake of strength, made of the best cowhide, are sewn on with strong waxed thread, and the different parts are sewn together with the same. Some of the better portmanteaus are also, for additional strength, riveted together with copper rivets. Before lining, a coating of brown paper is pasted in, and the lining itself, which is of the strongest and best ticking, is then sewn into its place. Pockets, when they are introduced, are usually of American cloth. Whenever either American or sail-cloth is used instead of leather, glue is employed as a stiffening material instead of paste. The enamelled leather used upon some of the cheaper travelling-bags,

though it looks well at first, suffers much more quickly from wear than do the less showy materials. The foundation of the leather-cloth is a stout grey unbleached calico, which is covered by machinery, while it passes over a roller, with a composition consisting of a number of ingredients, among which boiled linseed oil, turpentine, lampblack, and zopissa are the most important. After this has been dried at a high temperature, the cloth is rolled, rubbed smooth with pumice-stone, painted, and finally varnished.

The ordinary form of portmanteau is too well known to need any description. One of a good serviceable size, that is, one large enough to contain a dress coat at full length, would cost, in solid leather, by the best makers, from £6 to £8; but a useful article of the same dimensions is to be bought for about £3. Such a portmanteau would be about 36 inches by 18, with a depth of 16. Smaller ones are of proportionate prices; one in solid leather, 18 inches by 12, and 7 in depth, would cost 50s.

Between the portmanteau and the travelling-bag there are several ingenious modifications, which combine, to a certain extent, the advantages of both. Most of the makers manufacture an article of which the upper portion opens at the top and forms a bag, while this opening backwards from the front side, gives access to the square bottom portion, which forms a small portmanteau.

The ordinary travelling-bag is less expensive. One of medium size, say 18 inches by 14, will cost in cowhide, about 25s.; and may be had in waterproof enamelled leather at as low a price as 10s. The "Square Mouth" bag is an improvement upon the shape of the above, inasmuch as the opening is of the same width as the bottom of the bag, which thus admits of more convenient packing, and involves less creasing of the clothes. The old-fashioned carpet-bag is now little used, from its inferiority both in point of appearance and in power of resisting wet weather.

The shallower bags known as railway hand-bags are generally made with outside pockets. A good one in cowhide, 16 inches long, would cost about £2; in morocco the expense would be rather more; in basil considerably less.

TEXTILE FABRICS IN DOMESTIC USE.—VII.

COTTON (*continued from p. 339*).

THE finest description of calico is known as long-cloth, which is used for shirting and various articles of clothing. This is not made nearly so wide as those qualities used for sheetings, being seldom over a yard. A good sample of long-cloth will be found to be very durable, and in this as in all other cases wherein textile fabrics are concerned, it will be found to be far more economical to purchase that of the best quality. Perhaps more money is wasted in the purchase of bad calico than in any other textile fabric. It is of course obtained for real service and hard work. Unlike a great many of the fancy textures, it cannot be used for decorative purposes; and consequently, durability is one of the primary good qualities it should possess. If this is not obtained, obviously it is of no service whatever, and the money expended in its purchase is entirely thrown away.

Besides the extensive applications of the plain cotton fabrics which have already been noticed by us, the same material is now produced, bearing upon its surface a printed pattern, which renders it suitable for morning dresses, and various articles of clothing for children. It need scarcely be said that this branch of cotton manufacture is one of the utmost extent and importance; as all know that in many families in humble life, silk and other similar fabrics are unknown, and that consequently the Sunday dress is like that of the week day, except that it is

cleaner, and perhaps of a rather more gay pattern. Very pretty and serviceable dresses indeed may be made of cotton prints if selected with taste and care, and they will be found far better than some of the trashy imitations of silken and woollen fabrics which are now manufactured apparently for the simple purpose of deceiving the unwary.

Some manufacturers are not over scrupulous as to the means which they employ in order to produce brilliant effects of colour. Bright tints the public will have, and in order to meet the demand, this brightness and brilliance is often produced by means of chemical processes which materially injure the texture of the cloth. As a vegetable substance cotton requires careful treatment with chemicals, especially acids, or it will, if not altogether destroyed, be so weakened as to be liable to tear and break under the slightest strain. This is frequently observable in some prints. We have observed a print dress, the pattern of which consisted of a small red cross upon a very dark ground. In this case the red portions of the fabric were rendered so weak by the chemicals employed that they very speedily were worn through; and, after some slight wear, they could all be easily removed completely up to the edges of the design, by merely rubbing the cloths smartly together, while the darker portion of the material remained uninjured, and as good as it ever was.

It is, however, clearly impossible to offer any hints upon the selection of colours in calico prints, as almost every day fresh improvements are made, by which more brilliant effects of colour are produced, and this without injury to the fabric. One thing, however, is certain—namely, that the more of the texture is left uncoloured, or only slightly tinted, the greater will be the probability of its serviceableness and durability.

Besides these remarks on the selection of colours, very little need be offered upon the purchase of cotton prints. As in the case of plain textures, the closeness of weaving, thickness, and freedom from dressing should be tested; and if only ordinary discretion be used, and a fair price paid for the article purchased, there will be no difficulty in securing a material which will render a good return for the money expended upon it. In many cases, however, printed cotton fabrics fade and lose their colour through injudicious treatment. Like those of wool, these fabrics also require some little care in washing, which if given will not only insure greater durability, but a far better appearance as long as the material lasts. For instance, a cotton print will become faded and spoiled in the first washing if soda or washing-powder be used, and the colours will often start if the prints be left wet for too long a period after having been washed. The best plan to adopt is that of making up a good lather of pure yellow soap, taking care to avoid that of the commonest quality, which often contains potash and other powerful alkalis. Into this the print should be placed and thoroughly cleansed in the usual manner, but not boiled. When perfectly cleaned, the fabric may be rinsed, to remove any remaining soap, and, finally, drawn through a bath of clean cold water in which has been dissolved a little common salt or alum. This will fix the colours, and after this treatment the print may be wrung out and dried in the usual manner, except that this latter process should be effected as quickly as possible. It may be as well to state that cotton fabrics of all descriptions are almost instantly destroyed by any of the more powerful acids, such, for instance, as nitric or sulphuric. If much of either of these be spilled upon them, it will be very difficult to save them; but if the damage be not very extensive, they should be at once placed in, or the parts affected be brushed over with, a strong solution of carbonate of soda, which in turn should be washed out of the fabric as quickly as possible.

SMOKY CHIMNEYS.

THIS intolerable nuisance, which in the old times was experienced in almost every household, has of late years greatly occupied the attention of both landlords and tenants. It may arise from various causes, either from neglect or ignorance on the part of the defective setting of the stove or range, or the lack of the necessary currents of air. To those who study health, comfort, and cleanliness, this subject must be of great interest, and any practical and lasting remedies of an inexpensive nature will be favourably received. It is the

principles to bear in mind is, that a current of cool air should be admitted into the room to drive up the chimney the heated air and smoke in such a manner as to prevent its return. The following contrivance to obtain the proper current of cool air which cannot otherwise be produced, may be adopted with great advantage.

ards or ground of the room, having an opening in the outer brickwork of the wall, the other end to open under the fender, which perforate with sufficient holes to cover the space of a square foot; the draught entering will force the heated air to ascend. A regulator, to prevent an

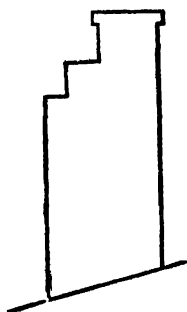


Fig. 2.

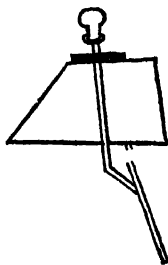


Fig. 3.

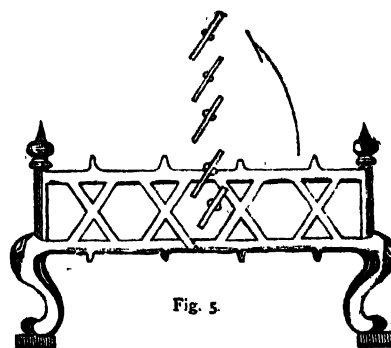


Fig. 5.

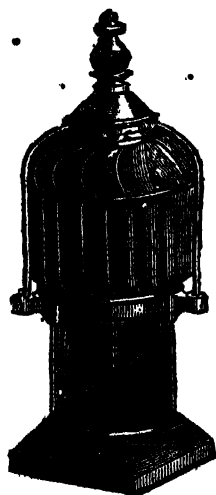


Fig. 6.

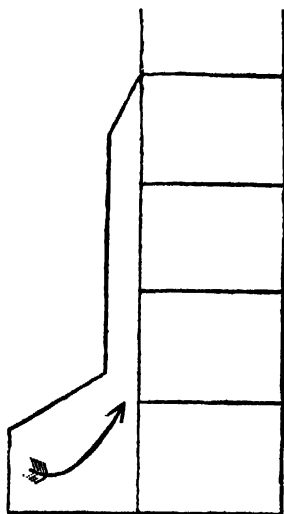


Fig. 4.

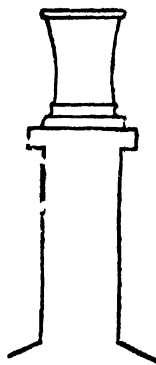


Fig. 2.

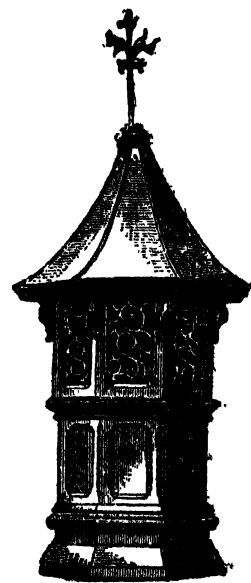


Fig. 7.

writer's object to place before his readers plans for the remedy of this domestic plague of a concise, general, economical, and thoroughly practicable nature, and so to place the remedies sought within the grasp of all.

All chimneys, of whatever elevation, dimensions, or build, are controlled by the currents of air either from above or below, or both; and these must be regulated in a manner calculated to produce the effect sought.

It is almost generally known that heated air expands and rises; thus, for instance, the hot air in a room will be nearest the ceiling, and the cool air below nearest the floor. This latter air being much heavier, must be allowed to enter the room either from a window, door, or some such ventilator, otherwise it will find its way in from the chimney, and by its weight force down the heated air, and, consequently, the smoke. Thus one of the first prin-

undue amount of air entering, must be attached to the tube, and worked according to the draught. Where the building is constructed so as not to admit of a plentiful supply of external air, this latter contrivance would, of course, be unnecessary.

Some of the principal defects in the build of chimneys are sharp angles, or ornamental pots placed thereon, which arrest the free current of air and allow soot to collect, and thus foul the chimney. (See Figs. 1 and 2.)

The improvements recently introduced into registered stoves are such as to allow the opening to be regulated in a manner so as to control the current of air passing up the chimney, which, being unduly powerful, not only carries a vast amount of heat from the room, but causes an unnecessary waste of fuel. (See Figs. 3 and 4.)

The higher the temperature of the room is, the more

powerful effect will the introduction of cold air have upon the chimney, by forcing the heated air upwards, and thus preventing the descent of the smoke.

Some kinds of stoves which have of late years become much in vogue in fashionable residences are apt to favour smoky chimneys; but by a little contrivance this may be to a great extent remedied, by contracting the apertures and other hollow parts. Apertures and hollows around stoves are apt to divert the upward current of air, which should pass freely up the chimney, so as by its force to expel the smoke from it.

The "louvre back," designed by Sylvester, is very ingenious and effective. (See Fig. 5.) It consists of iron plates, placed at the back of the range. The chimney thus becomes contracted, and upon opening one or more of the plates the rush of the current of fresh air forces the heated air and smoke upwards. This method can be applied to most of the ordinary open ranges in use.

Another mode can be adopted in the case of the use of the old-fashioned grate, by the introduction of a "back-draught" plate, without necessitating the enclosure of the range, which assists in rapidly carrying the heat and smoke upwards.

Where fires are lighted in two rooms adjoining, it sometimes happens that one will smoke; this is caused through the air ascending in one fireplace exceeding in force that of the other, and the air becoming rarefied, the tendency being that the one with the lesser draught allows of a downward current of heat and smoke, and this mainly arises from want of sufficient air in the room. To remedy this, the chimney must be contracted, and a pot placed on the top, to assist the up current and impede the down.

One of the most frequent causes of smoky chimneys is owing to the shortness of the chimney itself, or where the chimney-stack is overhung by tall buildings. The most complete and effectual cure for this is the Archimedean Screw Ventilator. The apparatus is intended for the double purpose of curing smoky chimneys and the ventilation of rooms; and in appearance very much resembles an ornamental chimney-top. The Archimedean screw is shown in Fig. 6, and it is so drawn as to show its construction; though, when working in the ordinary way, the screw is surrounded by a tube or outer casing. The screw is worked by the action of the wind on the vanes shown in the same figure, and the least force of wind is sufficient to revolve the screw, which has the effect of producing an exhaust, which, being drawn upwards, creates an up draught; while the construction of the revolving hood is such that, however strong the wind may be, nothing can possibly be blown down. This shows how serviceable this invention must be on chimneys contiguous to high buildings, &c.

Figure 7 shows how very ornamental the ventilator may be when affixed to villa residences, or when applied to halls or public buildings, for the purposes of ventilation only. One very important advantage of the Archimedean screw is that it not only prevents down draughts, but clears the chimney of all obnoxious gases and sulphurous smells, such as sometimes descend when there is no fire in the room below.

In the case of buildings where the walls are unusually thin, which will be found to be the case with houses run up by speculative builders for the purpose of sale, the effect of the cool outer air will be great upon the chimney by cooling the current of air therein, and, as before explained, causing it to descend. The remedies for this defect hitherto proposed have been such as to cause considerable inconvenience in their carrying out, and also great expense. They consist of adding additional thickness to the wall. In other cases a blower has been recommended, but it does not provide a permanent remedy.

A great nuisance will often arise in the case of adjoining chimneys, when the fire is burning in one and not in the others. In the latter case, provided the rooms are but imperfectly supplied with air, the smoke from the other chimney will descend, and as in the case even of registered stoves, the door seldom if ever fits closely, the apartment or apartments are rapidly filled with smoke. The only permanent and effectual remedy will be a top or pot affixed to the chimney, which will prevent the down draught.

Perhaps one of the most complicated cases to deal with is that where outer or lower buildings have been attached to those of greater eminence, and a distinct communication exists. These frequently occur in large public buildings, having a large hall or space in the centre, with the small buildings at either side, for offices, &c. The air in the body of the hall of the building will generally be found to be more rarefied than that in the offices or smaller apartments; consequently, upon opening the doors of the same a rush of air is produced, which upon passing from the building, causes a supply of cold air to collect around the windows, which finds a passage down the chimney; and in this case, through being itself of a low build, the effect is considerable. The object to be most studied in such case will be to prevent as much draught or air passing from the office as possible. This may be accomplished by a double, or a very closely-fitting door. The grate also in the body of the building should be much contracted, and the chimney protected by a pot. This latter precaution must also be adopted in the case of the offices, in order to arrest the downward current. These remarks will apply to all descriptions of outer buildings of a low nature, communicating with the principal building; and too much care cannot be taken that the smaller apartment is well supplied with air, and every means adopted that will tend to arrest the downward current. In many cases rooms constructed on this plan become totally unfit for habitation when a fire is required, provided the foregoing precautions are overlooked.

Much inconvenience from smoke will be occasioned where the roof of the building exceeds in height the top of the chimney; for then the flow of the current of fresh air coming in contact with the roof, is arrested or driven back, and the ascending current consequently forces the smoke into the apartments below. The usual plan resorted to in such a case, is the raising of the chimney, causing expense and an unsightly appearance. This is unnecessary, as the simplest plan is to utilise the currents and draughts, and create an up-draught, which is accomplished by fixing a top, manufactured for the purpose. It would be well for all builders, when erecting houses, of whatever elevation, to bear in mind that no brickwork (where it can be possibly avoided) should be allowed to interfere with the free current of air; for it has been so plainly demonstrated that smoke, in houses where this rule has been studiously adhered to, is seldom or ever known. The inconvenience of smoke through this oversight more frequently occurs in public buildings with ornamental or very sloping roofs, where a greater regard has been paid to appearance than to actual utility and comfort. In addition to the expedient of the current being occasioned through the roof, it may be similarly effected through other structures in close proximity. Provided this greatly affects the current of fresh air, the grate must be thoroughly contracted, and a pot as before placed upon the chimney.

Small dwellings built against tall houses will invariably suffer much from smoky chimneys, through the cold air descending upon their roofs and overpowering the upward current from the chimney, which consequently forces the heated air and smoke back into the apartment. Various remedies have been suggested in this case, but mostly of an expensive or unsightly character; and it is consequently

not considered necessary to recapitulate them, on that account; it being our desire to recommend the most simple and economical plan at command. It is not only necessary in this case to prevent a downward current, but to assist the ascending; and for this purpose the Archimedean pot might be employed with advantage. We name the Archimedean, as it appears to us to be the best we have met with. This might be assisted by the occasional use of a blower, but in most cases this will be found unnecessary.

In very exposed quarters, chimneys of great elevation, without any impediment to the passing current of air, will occasionally be found to smoke; but with the exception of the uppermost apartments, this rarely occurs, save in very windy weather, provided of course that there be no actual defect in the building of the chimney. In the case of an extraordinarily high wind, the smoke will be unable to emit itself, and a large volume consequently accumulating in the chimney a portion must return. Various protections to the pot have been devised, but principally of a defective character, through allowing the wind to settle in the pot, and thus to force its way down the chimney, or not giving sufficient passage to pass the smoke. No remedy as yet introduced is, in our opinion, so likely to prove effective under these circumstances as the Nonpareil Smoke Conductor with open coronet top.

It will at times occur, though fortunately not often, that the chimney will be built too small to admit of a sufficient upward current. In this case the first thing to be observed is, that the grate be made as contracted as possible, and other means, such as a blower, should be used to assist the upward current.

By no means the least difficult matter to remedy* is a smoky kitchen chimney, not only on account of its open space, but through the many impediments to which the free vent of the fire is subjected. In our modern large dwellings the introduction of the various patent cooking-stoves or kitcheners are in themselves a sufficient protection against smoke, contrived as they are to supply a full complement of heated air with a great power of upward draught; but these not being within the reach of all, on account of their costly nature, and from want of proper knowledge of their use by servants in general, means of a simple and efficient character must be resorted to. It seldom or never happens but that a plentiful supply of air is to be obtained in our kitchens, which is of itself an essential advantage in dealing with a smoky chimney. Although in building a kitchen chimney the builder usually allows ample space, he will be found to err at the upper portion or top, either by too sharp a finish, or fixing an inadequate pot thereon, through which the air and smoke cannot freely pass, while the outer air is apt to enter. A full 13-inch diameter pot should be used. The old-fashioned range, which is entirely open, can be considerably contracted by the introduction of two plates above the hobs, to close the cavity in the chimney, and two upright pieces of iron from the side of either bar should be introduced, so as to confine the opening in the chimney to the space immediately above the fire. A blower may also be applied, and should the smoke then not be entirely cured, recourse should be had to a patent smoke-conductor, with the open coronet top.

Chimney terminals have from time to time occupied considerable attention, and are doubtless important subjects in connection with smoke, but as no definite rule can be laid down either for their manufacture or fixing, a general brief notice concerning them will suffice. Amongst the most improved introductions, and which

have been most patronised, are those of the late Mr. Billings. Simple in their construction, they have at times proved very efficacious, while on the other hand they have wholly failed to be productive of any satisfactory results, under certain conditions. They consist of flat pieces of stone or earthenware, with a hole in the centre (see Fig. 8), which covers the top of the chimney, the hole being of sufficient size to admit of the smoke passing out freely, yet not sufficiently large to allow any undue current of air to pass down. Each chimney or hole is protected on either side by an upright piece of stone, which serves as a protection from the draught (see Fig. 9). This latter, of course, supplies the place of the common chimney-pot, allowing the smoke to pass away at the side, and reducing to a minimum the chances of any adverse current of wind carrying it down the adjoining chimney. The size of the aperture in the flat piece of stone must in all cases be regulated by the dimensions of the chimney which it is to be fitted to. For instance, one of a large construction will often require considerably diminishing, in order to shut out the cold, or admit of a proper upward draught. Another plan somewhat similar to the last has been introduced, whereby the top is roofed in, or a flat piece of stone spread along the top of the upright pieces of some from end to end.

We have endeavoured to lay before our readers the various causes of smoky chimneys, and some practical suggestions for the prevention and cure of the same, and as the subject when lucidly explained is one of ordinary simplicity, it lies within the power of all to eradicate a nuisance so detrimental to health, comfort, and cleanliness.

That the subject is being more studied by the builders of the present day is evidenced by the fact that our modern chimney stacks do not abound with those various unsightly forms of zinc; for where plain

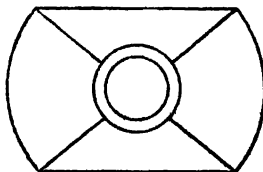


Fig. 8.

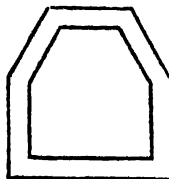


Fig. 9.

rules have been laid down, pointing out the necessity of carefully avoiding all contiguous obstructions to a free current of air, the admission of over-draught, and the lack of sufficient, they have invariably been followed to successful account. It may not, however, be out of place to add a few remarks which all engaged in the operations of building would do well to follow. The doors and windows of rooms should not be fitted so as to exclude all air, for special reasons, previously explained. All grates should be contracted as far as practicable, and hobs dispensed with, as these tend to divert the upward current. The chimney should be as elevated as possible, and in no case lower than the roof, when possible to avoid it. The aperture should in all cases be protected. All outer walls of chimneys should in no case be of less thickness than nine inches. In the event of erecting a small house beside a large or taller one, always protect your chimney-pots with a covering, and do not build the chimneys too wide. In the case of low chimneys the fire-place should not exceed two feet and a half in height. Where an outer or extra room is constructed to communicate with the existing building, and where it is impracticable to construct a lofty chimney against the main building, pay special attention to the following rules:—Contract your grate; confine your chimney to small dimensions; let your fire-place be low, about the height just previously mentioned; use a blower; place one of the terminals previously spoken of upon your chimney; allow a sufficient supply of fresh air to reach your grate, either through artificial means or otherwise. Such simple rules carefully followed out when the chimneys are constructed, will cause the nuisance of smoke to be a thing of the past, and save much after-trouble and expense.

WORKING IN HAIR.

II.

FLOWERS, of which we give an example in the carnation at Fig. 1, are also formed of the prepared hair on gold-beaters' skin; but to give them the concave shape common to natural flowers, the following expedient must be resorted to:—A small circular piece of stiff paper of the size of the flower must be first cut out, and rendered cup-shaped by pressing it in the centre with a point of metal or ivory. This, for convenience in working, may be temporarily fixed to a sheet of paper with a little gum. The petals of the flower are cut out from the hair-covered skin, and gummed neatly within the cup, the edge of the second overlapping the first on one side, and being overlapped upon the other by the third, and so on until the whole is completed. In the illustration we have also shown smaller inner petals, formed of lighter-coloured hair. The centre may be finished either by cutting up hair into short pieces and working it with gum into a paste to form a small ball, or by affixing the half of a small pearl in this place, which latter has, perhaps, a more brilliant effect. When finished and dry, the flowers may be removed from the sheet of paper, and fastened in their positions upon the tablet. During the time, however, that these are in preparation, other processes will have to be attended to. The stems of these flowers are made in precisely the same manner as those of the wreath in Fig. 3, page 337; but the portions of hair which represent leaves are made by a method which we have not hitherto described. A small lock of hair is dipped in gum, laid upon a palette, and worked with the point of the knife and the camel-hair pencil into the required form; here it is allowed to dry, and when dry, can be removed by merely warming the palette. The small intermediate sprays which give such finish and effect to the whole design, may either be simply pencilled in with Indian ink (if the hair be black), or with such a colour as will match that of the hair; or the fine golden-hued filament of a peacock's feather may be gummed down in these places. For the tie at bottom of the flower, fine gold-wire thread will be the most appropriate and beautiful material.

Although in our own estimation the Tomb-and-Willow is not a pleasing device, it is one held in such general favour by the public, when applied to working in hair, that we have considered it necessary to give a description of it among our examples, especially as the method of forming a willow will be found applicable to some other kinds of foliage. The tomb with its symbols must, of course, be painted upon the tablet with Indian ink or sepia. For the stem of the willow, a small bundle of hair, previously dipped in gum, must be laid upon the tablet, and worked into its proper position; the smaller branches and twigs being formed of a few hairs led out from this at the proper points, and curved into their appropriate positions with the point of the knife. If the stem itself should at any point be found too much weakened by this separation, it will be easy to increase it to its proper size by adding a few new hairs. For the leaves, a quantity of hair must be cut into pieces of the proper length, and these, after

having been gummed, must be arranged in their appropriate positions along the stems, with the point of the camel-hair pencil. The grass around the base of the tomb may either be formed in the same manner, or, if preferred, drawn with Indian ink or sepia, like the tomb itself.

A pretty design to which to apply hair is the Prince's-feather, shown in Fig. 2, which is also very popular. This is made of three distinct locks of hair, each of which will require to be separately manipulated. A small bundle of prepared hair, trimmed at its right-hand end, is laid upon

the palette; the other end is tightly grasped by the thumb and finger of the left hand. By slightly raising this, the hollow point of the curling-irons can be placed beneath it, and drawn carefully down to the opposite end. Grasping both the handles, and the end of the lock firmly, the former must be turned over about three times to make the curl, which must be set by heating the irons; this should be done by holding them in the flame of a candle placed half-way between the hand and the curl, and keeping up the heat until the curl begins to steam. Before removing the curl from the irons, it will be well to keep the left end from becoming loose by slightly moistening it with a wetted finger; the curl may then be laid upon the palette, and secured with gum. For

fixing the curl itself, a needle dipped in gum may be passed through its eye, and the lock may be kept on the palette during these operations by a thin line of gum drawn just beneath the curl. To set the curl, a smooth flat piece of ivory, metal, &c., should now be placed upon it, with a sufficient weight, and in about an hour the curl will be set, and may be removed from the palette by heating the latter. Upon transferring it to the tablet, some additional finish may be given in separating, arranging, and smoothing the hairs, and in giving generally additional grace and beauty to its contour. The other two curls are, of course, made and affixed in the same manner, except that one is made to turn in an opposite direction to that observed in the other two. The small sprays seen between the curls are, in the design given, supposed to be formed of lighter hair affixed to skin; they may, however, be painted, or worked in gold thread, or in feather filament. The band by which the different parts of the Prince's-feather are bound together, is formed in the first place of a strip of white paper, enriched with two straight, and one zigzag band of gold thread, surmounted by half pearls.

If the hair should prove too short for making these curls, it is possible, with a little practice, to form them of two parts, joining the hair in a slanting line through their centres.

A single feather, without curls, is also a very suitable device for carrying out in hair. The central line or quill is formed in the same manner as the stem of a flower or tree, that is by saturating a fine bundle of hairs in the solution of gum, laying it upon the tablet, and working it into its proper shape and position with the point of the knife. For the fringe of the feather, pieces of hair have to be cut to the proper length, which may either be equal for the two sides, or longer for the outer and shorter for the inner side, such as is more frequently seen in natural feathers; it must be remembered, however, that these

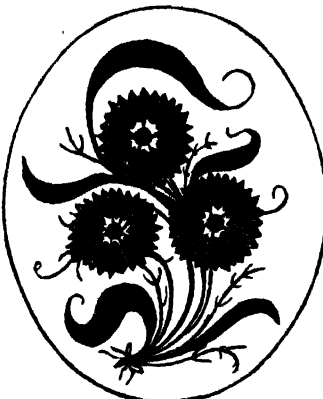


Fig. 1.

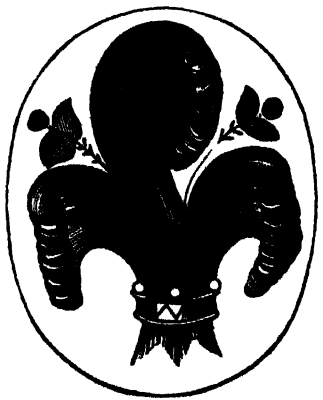


Fig. 2.

pieces ought not to be of the same length throughout the whole side, but longer for the centre than for either the bottom or top. When cut they must be soaked in gum, and then arranged in position against the stem. In doing this the actual curvature of a feather's fringe should be observed, and this may well be copied from a natural one; it will be seen that, at first the line curves outwards from the stem, then runs in an almost straight line, and finally curves inwards at its end. Feathers of this description may be made more ornamental by twisting them over at their top ends, while the bottom may be enriched with a tie of gold thread, or feather filament, or with a band of pearls.

When a design of any sort is completed, any superfluous gum may be removed by slightly damping with a camel-hair pencil dipped in water, and gently scraping with the knife. It will frequently be found that a little unintentional space will have occurred between two parts of the design, the unsightliness of which may be remedied by putting in a line or tendril, in Indian ink or in colour; while a little touching with the same materials, among or by the immediate side of the hair, will often conceal any inequality or imperfection in the work.

The purpose to which hair-work is usually devoted is that of jewellery, though designs thus made are sometimes mounted and framed, in the same manner as photographs and miniatures, for hanging upon walls. For mounting these devices as personal ornaments, brooches, lockets, bracelets, &c., of proper sizes and shapes are specially made and sold.

THE HOUSEHOLD MECHANIC.—LXX.

PAINTING (continued from p. 335): RECEIPTS FOR MIXING COLOURED PAINTS.

Stone-colour.—Yellow ochre, umber, and white-lead.

Freestone.—Red-lead, Venetian red, French yellow, and lamp-black, varying the shade or tint according to taste. Mix with boiled linseed oil and turps.

Lead-colour.—Lamp-black and white-lead, with a little litharge.

Dark Lead-colour.—White, black, and indigo.

A Fine White Paint.—To produce this take half a gallon of spirits of turps, to which add one pound of frankincense. Melt it over a clear fire, strain and bottle for use. To each pint of this mixture add half a gallon of bleached linseed oil. Mix well together. Grind white-lead in spirits of turps, strain and make it fit for colouring by the addition of sufficient lead. If too thick, add more turps. This produces a beautiful paint, well adapted for internal work.

Common Flesh-colour.—Add a small portion of red-lead to white-lead, and mix as usual with oil and turpentine. A finer quality can be produced by substituting lake and vermilion for red-lead.

Pearl Grey.—Mix together in oil white-lead, red-lead, chrome yellow, and fine English Venetian red.

Blue.—Grind in turpentine Prussian blue, and other blue in pure linseed oil. Add white paint until the shade of colour required is obtained.

Straw.—Mix in oil and turps white-lead and chrome yellow.

Purple.—Combine vermilion, Prussian blue, and white-lead, which mix in oil and turpentine.

Cream.—Mix in oil white and red lead, chrome yellow, and fine English Venetian red.

Buff.—Add oil and turpentine to French yellow and white-lead, and shade with Venetian red.

Silver.—Mix indigo with white-lead, and shade with black.

Gold.—Mix with a little realgar Naples yellow, to which add a small portion of Spanish white.

Steel.—Compound best lac and verdigris with Prussian blue and ceruse so as to form the required shade.

Black.—Mix with boiled oil and turpentine vegetable black. This forms a good writing colour.

Drab.—Either of the following, mixed with linseed oil and turps, forms a good drab:—White-lead, burnt umber, and a small portion of Venetian red; white-lead, raw umber, and a little Venetian red; French yellow, white-lead, and a small quantity of Prussian blue; a small portion of chrome green added to white-lead; lamp-black and French yellow in small quantities, mixed with white-lead.

Violet.—Mix blue with vermilion, and add a small quantity of white.

Salmon.—Shade with fine English Venetian red white-lead mixed in oil and turpentine.

Chocolate.—Grind in boiled oil and turps Venetian red and lamp-black, to which add a little red-lead.

Orange.—Mix in oil and turpentine French yellow and red-lead. Another colour, more lasting than the former, can be produced as follows:—French yellow and orange lead mixed in linseed oil and turpentine.

French Grey.—Mix in oil and turpentine Prussian blue and white-lead, and shade white, vermilion, or carmine.

Fawn.—Shade white-lead with ground burnt terra da sienna. Also produced by mixing vermilion, white-lead, and stone ochre.

Peach Blossom.—Mix white-lead in linseed oil and turpentine, and shade with orange lead.

Light Pine.—Take white-lead, umber, and spruce ochre, and mix in oil and turps.

Green (Pea Green).—Grind in pure linseed oil one and a half ounces each of burnt white vitriol and sugar of lead, one pound and a half of white-lead, three-quarters of a pound of blue verditer, and half a pound each of fine mineral green and precipitate of copper. This paint can be preserved for any length of time by covering it with water. The colour may be lightened by adding white-lead, previously ground in oil, and spirits of turps added. If required for painting large places, mix it with pale boiled oil, and if for purposes such as blinds, &c., add white-lead, mixed as before, in boiled linseed oil. It will present a bluish tint.

Green (Olive).—Grind in boiled linseed oil French yellow and Prussian blue, apart; mix them until the required shade be obtained, when add a small quantity of burnt white vitriol. This latter will assist the paint to dry. A little Turkey umber may be added, or otherwise.

It may also be made as follows:—Grind in oil, as before, chrome yellow and Prussian blue, and mix.

Also take white-lead and verdigris; double the quantity of the former to the latter, and mix in walnut oil.

It can also be produced by mixing yellow with the verdigris.

The following will produce a good olive green:—Mix to the tint required yellow, black, and blue.

Green (Invisible).—Mix in boiled linseed oil French yellow, lamp-black, and burnt white vitriol. The latter, as previously stated, will assist the drying.

Green (Bright Varnish).—Grind in spirits of turps white-lead, and add about one-third of the quantity of verdigris, previously ground to a paste in linseed oil, and bind with a small quantity of resin varnish. Allow it to become firm, when add more resin varnish until it has a gloss. Shade with mineral green, in substitute for verdigris, if preferred, or Dutch pink. Use when warm.

Yellow (Light).—Mix in linseed oil and turpentine white-lead and French yellow. Red-lead may be added at times.

The following will also produce a good light yellow:—Raw terra da sienna and white-lead mixed in oil and turps.

Yellow (Dark).—Add a small quantity of red-lead and litharge to French yellow, and mix in boiled linseed oil.

Chestnut (Dark).—Mix black and red ochre, and shade with yellow ochre, mixed in oil, if required.

Walnut Wood.—To five ounces of white-lead add two and a half ounces of red ochre and a small addition of amber and yellow ochre, according to the shade required. Figure with black, amber, and ochre.

Red (Dark).—Mix in boiled linseed oil English Venetian red, and add sufficient red-lead, as a drier.

Red (Light).—Mix in boiled turps and oil one pound each of red-lead and Venetian red.

Red (Deep-coloured).—Vermilion, and a very small portion of pulverised Venetian red, mixed in oil.

Carnation.—Compound white and lake.

Vermilion (Imitation).—Rose-pink and red-lead ground in oil.

Gold.—Wash in water until it leaves a red tint, one pound of spirits of wine and a quarter of a pound of fine gum lac; dry and pulverise. Add additional spirits of wine, and boil by the heat of water, until the gum is thoroughly mixed, then strain through a linen cloth, and place it in a jar or bottle well corked. It will give the work a richer appearance to coat first with silver paint. Great care must be taken in the boiling that the ingredients do not take fire. A good imitation gold may be made by mixing burnt sienna, chrome yellow, and white-lead.

DISTEMPER COLOURS.

Peach Blossom (Fine).—Mix together orange lead and whiting. The whiting should be dissolved in water, and the orange lead ground in water previous to mixing. Add size, and well strain, and allow it to form into a jelly.

Pink.—Take rose pink and whiting, and having dissolved them separately in water, mix to the shade desired, strain, and thicken with size.

Buff.—Dissolve separately in water French yellow and whiting; add a small quantity of English Venetian red, strain and mix with size.

Lilac.—Grind well in water a little indigo, to which add whiting, until it produces a dark grey. Mix together with a little rose pink, and well strain.

Orange.—Dissolve in hot water one pound of green copperas, and mix with four gallons of new lime-wash. Also, take French yellow and whiting, and mix with size.

Blue.—Dissolve whiting and water, and add indigo.

Straw.—Grind chrome yellow in water, to which add some whiting previously dissolved in water. When the proper tint is obtained, add strong size. Strain through a sieve.

Cherry-tree (Imitation).—Pulverised burnt terra da sienna and whiting, added to one gallon of water in which half a pound of glue has been previously dissolved.

Salmon.—Having dissolved whiting in water, shade with fine English Venetian red.

Grey (French).—Dissolve whiting in water, and colour with Prussian blue and lake, previously dissolved in water, according to taste.

Grey (Light).—Mix with whiting a small portion of lamp-black, until you have the shade required.

Green.—Mix together and grind in water one pound of mineral green and three pounds of green verditer. Add size until it forms a jelly. This is well adapted for walls.

Also mix in water blue vitriol and common salt. Insert copper plates until a green precipitate is formed, then mix with whiting, and allow to dry.

It can also be cheaply produced as follows:—Add one pound of whiting to four pounds of Roman vitriol. Boil with three gallons of water in a copper vessel, until well dissolved. Pour off and allow to stand. Add size. Shade with Dutch pink or chrome yellow.

Greens (Compound).—Mix, according to taste, Dutch pink, indigo, and whiting, and vary the shade by the addition of blue or yellow.

Drab.—Grind burnt umber in water, to which add whiting previously dissolved in water. Having obtained the tint required, strain and mix with size. Also, dissolve French yellow and whiting in water. Mix together till a fine colour is obtained. Add lamp-black, previously ground in vinegar, until the proper colour is produced. Can also be tinted with Venetian red.

The following is a scale of the average prices for painting:—

	Per Foot.
Painting in oil in common colours, for plain skirtings, rails, reveals, &c., when not exceeding six inches in width... ..	once $\frac{1}{2}$
Ditto ditto	twice 1
Ditto ditto	three coats $1\frac{1}{2}$
When moulded, and above eight inches in width, in oil	once
Ditto ditto	twice
Ditto ditto	three times
Ditto ditto	four times
Plain cornice in oil	once
(Increasing $\frac{1}{2}$ d. per coat.)	
Gutters, water-pipes, &c., $1\frac{1}{2}$ d., 2d., 3d., and 4d. per foot, according to number of coats.	d.
Copings, window-sills, &c., in oil	once 1
Ditto ditto	twice 2
Ditto ditto	three coats 3
Superior carved and cornice work, in oil	once $1\frac{1}{2}$
Ditto ditto	twice 2
Ditto ditto	three coats $3\frac{1}{2}$

Painting in Fancy Colours in Oil (two coats). Per Sq. Yd.

	s.	d.
Patent greens and blue	1	0
Light green	0	8
Drab, French grey, &c.	0	8
Peach blossom and lilac	0	8
Vermilion and lake	1	6
Flattening	0	10

Painting in Common Colours in Oil. Per Yard.

	d.
One coat	3
Two do.	6
Three do.	8
Four do.	10

If clearcolled, or compo work, 1d. extra per yard.

If sanded or flatted, 4d. extra per yard.

This scale of charges will be found most serviceable, as it will enable the householder to calculate the expense of executing any work, and will serve to guide him in checking the value of work executed.

PLAISTERS FOR DOMESTIC USE.

III.

RICKETS, GOUTY AND RHEUMATIC JOINTS, SCROFULOUS TUMOURS, &c.—Galbanum. Dissolve together 1 oz. of turps and 8 oz. of strained galbanum, with which mix 3 oz. of prepared frankincense, also 3 lb. of dissolved lead plaisters. Take $\frac{1}{2}$ oz. each of galbanum and gum ammoniacum, which dissolve and strain. Dissolve $\frac{1}{2}$ oz. of beeswax, and 4 oz. of litharge plaister, which add to the former and well mix. Is resolvent and stimulant.

DEFENSIVE OR STRAPPING PLAISTER (being a basis for others).—**Lead.** Boil slowly until firm 1 gal. of olive oil, into which place 6 lb. of pulverised oxide of lead, taking care to constantly stir during boiling. The following are also recommended:—

(Ph. E.).—Litharge, 5 oz.; olive oil, 12 oz.; water, 8 oz. Prepare same way.

(Otto Kohnke).—Add $\frac{1}{2}$ pint of white vinegar to each pound of litharge used (each oz. of which is capable of saturating $\frac{1}{2}$ dr. of carbonate of potassa), add the oil, as above directed, boil to a paste. Having removed it from the fire, add $\frac{1}{2}$ to $\frac{3}{4}$ as much vinegar as before, and reduce by boiling to a proper consistence.

(Ph. D.).—Olive oil, 1 gal.; litharge, 5 lb.; water, 1 quart.

The following is for large quantities :— $\frac{1}{2}$ cwt. of litharge, 7 gals. Genoa oil, and 2 $\frac{1}{2}$ gals. water, reduced by boiling to a plaister. Preference should be given to those receipts where the proportion of oil to litharge is large, which should be 2 $\frac{1}{2}$ times the weight of that of the litharge. Great care must be observed that the vessel is perfectly clean. During the boiling constant stirring must be kept up, and in the case of the larger quantity for the space of several hours. For this purpose use the spatula. The paste should be cooled by water, and well worked by the hand to render it perfectly white.

INFLAMED OR EXCORIATED SURFACES, BEDSORES, BURNS, &c.—*Mahy's*. Well mix and boil together 32 oz. of olive oil with 1 lb. of genuine white carbonate of lead, to which add 1 $\frac{1}{2}$ lb. of lead plaister and 4 oz. of yellow wax. Let all well amalgamate and cool, and then add 9 oz. of pulverised orris-root.

GLANDULAR ENLARGEMENTS, LIVER COMPLAINTS, &c.—*Mercurial*. Heat 1 dr. of balsam of sulphur, and with it thoroughly mix 3 oz. of mercury, so as not to leave a single globule; then, by degrees, add 1 lb. of lead plaister, well dissolved. Stir well until thoroughly mixed.

(*Ph. E.*)—Having heated and well mixed 9 dr. of olive oil with 1 oz. of resin, allow it to cool, when add 3 oz. of mercury, and having disposed of the globules, add 6 oz. of litharge plaister (melted), and well mix.

(*Ph. D.*)—Dissolve 2 oz. of resin, to which add 1 oz. of oil of turps, then 6 oz. of mercury, disposing of the globules as before; after which, mix 12 oz. of liquid litharge plaister, and move the whole until it forms a paste.

RINGWORM (DEPILATORIES IN).—*Morrison's Adhesive*. Mix and stir to boiling, $\frac{1}{2}$ pint of mild ale with 2 oz. of best flour. Let cool, when add 3 oz. of pulverised resin. Replace upon the fire, and stir until boiling point. Apply to affected part.

FACIAL NEURALGIA, SORE THROAT, AND PAINFUL JOINTS.—*Mustard*. This simple but universal plaister is composed of the flour of mustard, worked into a paste by the addition of vinegar or water, and is spread on linen and applied to the affected part, care being taken to protect the skin by a covering of a thin nature, such as muslin, &c. It should be allowed to remain but for a short period.

LOCAL PAINS.—*Opium*. Dissolve 2 oz. of frankincense, to which add 8 oz. of lead plaister and 1 oz. of liquid extract of opium, reduced by 1 oz. of boiling water; well stir, and allow to evaporate to a paste.

WEAKNESS OF THE JOINTS, MUSCULAR RELAXATION, &c.—*Oxide of Iron*. Reduce over a slow fire 2 oz. of frankincense and 8 oz. of lead plaister, add 1 oz. of sesquioxide of iron, and stir the whole together.

(*Ph. E.*)—Reduce 3 dr. beeswax, 6 dr. yellow resin, and 3 oz. of litharge plaister, to which add 1 oz. of oxide of iron, pulverised with 3 $\frac{1}{2}$ dr. of olive oil.

(*Ph. D.*)—Treat as in the first instance 1 oz. of pulverised peroxide of iron, 8 oz. of litharge plaister, and 2 oz. of Burgundy pitch.

To produce it in bulk, take 84 lb. of seasoned lead plaister, 14 lb. of good coloured crocus martis, and 14 lb. of pulverised yellow resin, to which add 3 pints of olive oil, and prepare as (*Ph. E.*).

SCIATICA, and Stiff Joints, Pains in the Back and Side, Throat and Chest Affections, Nervous and Local Affections, Spleen, Varicose Veins, Heart Disease, Sprains, Bruises, Asthma, Headache, &c.—*Alcock's Porous*. These plaisters, which have obtained a justly celebrated name both here and in the United States, are the combined productions of Dr. Schecut, of South Carolina, Horace H. Day, and Thomas Alcock. By their presence an electric current is said to pass into the system, invigorating the muscles and otherwise imparting tone. In the case of headache, when placed below the breast-bone their efficacy is com-

plete, and in the case of the numerous affections of the bowels, one applied to the navel will produce excellent effects.

BOWELS.—*Roper's Royal Bath*. Dissolve 1 oz. each of beeswax and tar, 10 oz. Burgundy pitch, and 16 oz. of black pitch well strained. When cool add 2 dr. of compressed oil of mace and 1 dr. Croton oil.

ABRASIONS, EXCORIATIONS, AND SOFT CORNS.—*Soap*. Reduce by heat 1 oz. resin, $\frac{1}{2}$ lb. of pared Castile soap; add 3 lb. lead plaister. Stir to a paste.

ANTI-ASTHMATIC PLAISTER.—Pulverised camphor, 1 $\frac{1}{2}$ oz.; diachylon, 1 oz.; powdered opium, $\frac{1}{2}$ oz.; and half a teaspoonful of sweet oil. Dissolve the diachylon in the oil, and after having removed from the fire, add the powder and spread the plaisters.

STRAPPING PLAISTER AND BASIS FOR OTHER PLAISTERS.—*Lead*. This is much used as a strapping plaister, and as a basis for other plaisters. To produce it, take 6 lb. of pulverised litharge, 1 qt. of water, and 1 gal. of olive oil. Boil and reduce to a paste.

2. Litharge, 5 oz.; olive oil, 12 oz.; and 3 oz. water.

3. Take to each 1 lb. of litharge 1 $\frac{1}{2}$ pint of olive oil and $\frac{1}{2}$ pint of white vinegar. Evaporate until the scales of the litharge all but disappear. Cool, and add a third as much vinegar (gradually) as before. Boil to a paste.

STERRY'S PLAISTER.—A nostrum very popular in London. Composed of ammoniac plaister of the Pharmacopœia, or ammonia dissolved in vinegar, and spread on brown paper.

STIMULANT PLAISTER.—Strained gum ammoniacum, 1 oz.; vinegar of squills, $\frac{1}{2}$ oz. Mix by a gentle heat, and spread on leather. To be applied to the chest or pit of stomach.

MUSTARD LEAVES.—M. Rigollet, the inventor of the convenient and efficacious substitute for mustard plaisters, frees ground mustard of its fat oil, and after having thus secured its preservation, spreads it and makes it adhere, by means of a sticky coat of india-rubber, on sheets of paper, which may be cut into pieces of all dimensions. One leaf being immersed in water for a few seconds and immediately thereafter applied to the skin, will insure the result sought for. The leaves are prepared by such a process that their strength is in no case altered by the dampness of the air, which always spoils that of mustard kept in canisters or drawers. That circumstance, coupled with the neatness of its use, its convenience, and safety, constitute the superiority claimed by this new invention. No exact directions as to the time during which the mustard leaves are to be kept on are given, as that must, as in the case of ordinary plaisters, depend upon various circumstances. For children or delicate persons, a sheet or two of wetted blotting-paper may be interposed between the leaf and the skin.

ODDS AND ENDS.

Linseed Syrup for Cough.—Simmer two tablespoonfuls of linseed in a pint of water until it is reduced to half; then add the same quantity of strong vinegar, or lemon juice, together with three pounds of brown sugar. Let it remain over a rather slow fire for two hours, and skim it frequently.

Sage Cream.—Boil a quart of cream, and afterwards add to it a quarter of a pint of the juice of the red sage, half a pint of sherry wine, and half a pound of sugar.

To Preserve Black Cherries.—Boil the cherries in sugar and water until they are reduced to a pulp. Then add more cherries, and half their weight of loaf-sugar, and continue to boil them until they become of the proper consistence.

BOOTS AND SHOES.

v.

SOME general remarks respecting the more important qualities of boots which come up above the ankle, will guide the wearer in selecting the most serviceable kind.

First, then, as to the cost. All leathers and workmanship which are not really appropriate can only end in the disappointment of the wearer as to the time the boots last, and as to the pleasure of wearing them. And the purchaser should not be tempted by the attraction of the reduction of a few shillings in price, to select articles which most probably are inferior in material and workmanship. Low price, we must remember, is not always synonymous with real cheapness.

Such boots should be *made to measure*, by a man who understands the purpose for which such boots are intended. The reason of this is that different men's legs and feet vary considerably in size and fulness; one man has a foot long and thin, and leg to match, whilst another, with an equal length of foot, will have a much fuller ankle and calf. By a skilful workman, making from measure, all the peculiarities of the wearer will be met and compensated for in an appropriate way. In sale or ready-made work of this class, the goods are all cut to sizes, varying from each other to the extent in length of one-third of an inch; but a man's foot may be rather less or rather more than one-third of an inch as compared with the size sold. This variation is of more importance in long work than short, because the leg of the boot is cut in a given proportion to the length of the foot; hence, if a man who has a long foot and thin ankle and calf, buy a pair of shop boots of the class called Wellingtons, Napoleons, or hunting boots, he will find them of the right length, but too broad in the tread and in the leg. This want of harmony with his real measure will produce a considerable amount of discomfort in wear.

They should be *hand-closed*. The difference between hand-closed and machine-closed work we have before alluded to, in reference to ladies' work; but in this kind of work the thickness of the leather and the rough wear such boots are supposed to be suited to resist, render it necessary that the hand of a skilful "closer" should manipulate every seam. By his skill the seams will become as supple as the broad leather of the boot, and capable of wearing to the last without letting in water or without ripping.

Not only this, but in the closing of the seams by hand an elasticity is secured, by which the boot pulls readily over the broad part of the foot, the heel and instep, and

rebounds to its place again when on, whereas in machine-closed work there is no elasticity in the seam, but only in the leather of the upper, which is not enough to give spring, or, as it is technically called, draught, to the boot.

To distinguish a pair of hand-closed boots from a machine-closed pair is very easy. In hand-closed work the seams are flat, and in most cases the upper, at the part where it is seamed, is no thicker than the leather at any other part of the boot; but, in machine-closed work, the leather of one part must be made to lap over the other part, thus producing a double thickness; and if, as sometimes is the case, the seam is made in the same way,

that is, by putting the leather together and sewing through and through, there is always a much greater thickness at the seam. Such a seam as is most suitable for work of the Wellington or Napoleon kind of boot can never be made by machine stitching, and the parts about the instep and heel must be deficient in elasticity.

The same remarks apply to the bottoming or "making," as the soleing process is called; all boots of the class named should be *hand-sewn*, and not "riveted" or "pegged," that is, put together with brass or wooden nails. In hand-sewing there is no danger of any metallic action on the leather which would cause it to break or rot; such boots are much more pliant to the tread of the foot, and they can be repaired with much greater chance of keeping up their first pleasantness of wear.

They should be made of heavy calf or of cowhide, which has been tanned and dressed so as to remove the skin as little as possible from its natural state. As far as appearance goes, they

should be free from all decoration or fancy work; their whole appearance should be as if they could be worn through any amount of mud, snow, sleet, rain, and even flood, and come out none the worse.

They should feel supple when handled, and even the soles, when forced, should have a small amount of spring in them.

The boots to which these preliminary remarks apply are known in the trade as "long work," and the following is a description of the more important of this class.

Fig. 1 is a boot which has not been much in the trade or worn by the public, yet it possesses, under the form we give it, some very valuable traits; it is one which deserves to be worn, and would do good service in winterly and wet weather, combining as it does the ordinary boot and a short gaiter. From this it is called the "gaiter boot." The form is a modification of the short Wellington, a boot which was in considerable favour some years ago. Fig. 2 shows the appearance of the boot when under



the leg of the trousers, in which position it looks like a Wellington boot. Should rain or bad weather come on, the boot is buttoned over outside the trousers, and looks like a modern gaiter and boot.

Speaking of gaiters, we may perhaps be allowed to make a remark or two on the singularly clumsy and inappropriate character given generally to such articles. They are made of thick unpliant leather; when taken off they cannot be wrapped up easily. If they are put on, and during a journey a person has to stay for awhile in-doors, he has frequently no convenient alternative but to keep them on. With a boot similar to the one described, he has but to put his trousers inside or outside, as the nature of circumstances may require, and his dress will be suitable to the occasion.

Fig. 3 is a boot which in modern parlance is called a Napoleon. It is either worn as a walking-boot or a riding-boot, for which purpose it was originally intended. It is a very handsome boot, and is derived from an old-fashioned Austrian boot called the Hessian.

As it is a boot, as we said before, which either suits for riding or walking, in bad weather it recommends itself to those whose avocations require them sometimes to be abroad on horseback and sometimes on foot. It is made with a moderately thick sole, and possesses no peculiar features beyond what have been mentioned.

Fig. 4 is a riding or hunting boot; a similar form to this is also called a butcher's boot, such a boot being worn by butchers in the slaughter-house. We shall only speak of it as a hunting boot, because if used as any other it may be looked upon as a Napoleon with a square top. As a hunting-boot it will be seen that it must be worn with under-breeches.

All long work, of course, necessitates a change in the trousers as at present worn. When the Hessian boot was in fashion tight-fitting pantaloons were worn with buttons at the bottom of the leg, by which they could be made to fit close, and the boot could then be pulled on over them without difficulty; but those who wear a Napoleon with the present style of trousers must strap or tie their trousers to the ankle before the boot can be got on, hence the Napoleon is not so available for ordinary wear, and we have therefore particularly noticed the gaiter boot as overcoming all objections. The hunting-boot is supposed to have the concomitant of breeches. We now proceed to give a description of its character. Its form will be indicated by the illustration. It should fit close about the leg, but the principal feature in connection with it is the bottom, which should be thin and pliant, having no "shank piece," or ridge, under the arch of the foot, and a low heel. In connection with this subject, we have omitted the mention of "jockey boots," although they are the cream of our English boot manufacture—a branch in which we stand alone and unrivalled. We have not, however, gone into the consideration of this class of boot, because they are so purely a speciality that they would be of little general interest.

Fig. 5 is a boot which is used for several different purposes. One of these is as a boot for riding in extremely bad weather. It is made with buckles, which secure it round the thigh, and by undoing which a good opening can be made at the top of the boot, thus giving ease in pulling on. The bottom is generally thicker than the other boot mentioned. This boot, if good, and if kept in

order, in accordance with the directions previously given in these pages, will stand any amount of rain, snow, and even water up as high as the thigh. Hence it is also used as a deck boot, and will protect the mariner when on deck from the constant wash of the sea in bad weather. It is also worn as a fishing-boot, and with it ardent followers of Izaak Walton may wade up to their knees in water or mud, and come out none the worse.

The suggestions we have made respecting boots and shoes will be found useful in guiding the selection of walking and other boots, with due regard to usefulness and economy.

GARDENING.—LIX.

THE COTTAGER'S GARDEN.

THE aim of a cottager in his garden should be to get the greatest quantity of really useful vegetables and fruit that the ground is capable of producing; this can only be done by constant attention, and doing everything in its proper time, or as near to it as his leisure time will allow, and doing it well and thoroughly. He should grow chiefly those kinds that are known to do well in his neighbourhood, attempting only small quantities of those that usually succeed but indifferently. The rules for his guidance here given are generally suitable, but as no rule should be followed without reason, local circumstances may sometimes make it necessary to modify some of them to suit particular cases. So, in respect of the kinds of seeds, &c., that are the best adapted to the cottager's use, the accompanying list is selected for hardiness, weight or quantity of crop, general certainty of doing well, and low price consistent therewith; but where there are favourite varieties of the most useful vegetables and fruit known to do well in particular localities, they may perhaps wisely be used instead of those named in the list.

Cleanliness, order, and neatness should be constantly maintained; if possible, never let a weed get an inch high. Weeds rob the soil of its goodness, and keep the light and air from the plants among which they grow; and if they are allowed to seed, they spread a crop a hundredfold more than there was before. The hoe should be used freely among all growing crops; it not only destroys the weeds, but it loosens the top of the soil and lets the air in, to the benefit of the plants.

The principal tools required are a spade, a steel digging-fork of five tines, a shovel, a scuffle or draw-hoe, a rake, a line, a dibble, and a barrow.

Manure.—Every effort should be constantly made in collecting everything that will rot into manure. If a pig is kept, so much the better; let the manure be wheeled away from the sty occasionally to some convenient place in the garden, and, in the case of home-gardens, let it be as far away from the homestead as possible, for the sake of health. To this heap should be added all the refuse of the garden and house; and, if there is time, or children to do it, collect the droppings from the roadside, and in the autumn all the leaves that can be got. To this heap should be carried daily all the house-slops from kitchen, wash-house, and chamber, and if some kind of cesspool is made to receive the drainage of the pigsty, this should also be carried to it. If there is no pig, still much may be done by a careful and persevering family in collecting materials for manure. This heap should be



Fig. 4.

turned over occasionally, but always kept in as compact a mass as possible.

In laying out the garden, usefulness should be the chief consideration; the ground can be cropped to more advantage if all the walks are straight, and cross-walks square with the main walk or walks. Drift-sand from the roadside is capital stuff to surface the walks with. Cinder ashes will also do, but are dirty if close to the house.

Drainage.—Heavy, wet land should be drained, if possible. The cheapest way of doing it is with small faggots or pimps of hedge-clippings, tied up tight, to be laid in narrow trenches about two feet deep, the trench to be dug out as clean as possible, with a hard bottom, and a fall to some outlet where the water can get readily away. These drains may be laid from twelve to twenty feet apart, according to the wetness of the soil; if two-inch drain-tiles can be afforded, they will last much longer, and may be laid somewhat farther apart, the trench to be afterwards filled up with soil in either case.

Fruit.—Too many fruit-trees should not be planted, as they overshadow the ground too much for the well-doing of the vegetables; but it is advisable that some should be grown, especially apples, gooseberries, and currants, as they have a most wholesome influence on the health, especially of children, when eaten as an article of ordinary diet, and not, as is too often the case, given to them immediately after a full meal. The salutary benefit of fresh raw fruit, eaten in a rational manner, is not sufficiently valued in the cottager's family. Those fruit-trees that are planted should be near the walks, that some portion of their shade may fall on them, instead of wholly on the cultivated ground.

Trenching should be done on a portion of the ground every year, so that every bit is trenched up once in three years. In doing this work the ground should be dug up two spits or spades deep, and if the bottom or subsoil is good it should be brought to the top, and the old top-soil put at the bottom. But if the subsoil is gravel, heavy clay, or sour peat, it should be broken well up, and left in the bottom, and the top-soil turned over on it; but a little of the subsoil may then be brought up and mixed with the top every time, so that in the course of a few years a good depth of a rich soil may be got. If manure is to be put on, it may be done at the same time, placing it between the two layers of soil, or it may be put on some time after the trenching is done, and dug in after the ordinary way. Ground that does not require trenching must be plain dug, either with or without manure. Both this and trenching should be done as soon as possible after the plots are cleared of their crops, so that the soil may be well weathered; and fork over with the steel fork all plots that have been trenched or dug and are lying fallow, as often as the top of the ground is dry enough to work well. This frequent moving of the soil has very much to do with making it fertile.

Cropping the ground with vegetables should always be done in systematic rotation, so as not to have the same kinds of plants twice running on the same plot of ground. All vegetable crops may be divided into three chief classes or divisions:—1. The cabbage tribe, which includes broccolis, cauliflowers, borecoles, savoy, turnips, &c. 2. Peas, broad-beans, kidney-beans, and scarlet-runners. 3. Root-crops, such as potatoes, carrots, parsnips, beet, &c. The first and second divisions should have the ground well manured; but those of the third division are better grown on ground that is not manured directly for them, but that has been heavily manured for the previous crop, letting them follow the crops in the first division, in preference to the second. Onions, spinach, lettuces, celery, Jerusalem artichokes, leeks, and radishes, all require plenty of manure, and may each follow or precede any other crop.

Beds of radishes may be sown broadcast, but all other seeds that are to stand without transplanting should be sown in straight drills, as it is much easier to thin out, weed, hoe, and otherwise clean and tend them. The smaller the seed, the less depth should they be buried in the sowing; and if seeds come up too thick, thin out in good time, and never let any crop be too thickly placed, as a better crop can always be got if they have plenty of light and air than if they are crowded.

Rows of dwarf beans and peas should be not less than four feet apart; tall peas, on sticks, six feet; scarlet-runners, ten feet if on sticks, or five feet if on the ground; rows of onions, carrots, parsnips, and beet, one foot apart; and the plants nine inches apart in the rows; coleworts or winter greens, turnips, spinach, and lettuce, one foot apart every way; all the rest of the cabbage tribe, two feet, and always plant these firm. Celery may take the place of the early dwarf peas, and be right for distance, setting the plants nine inches apart in the row; rows of potatoes two feet apart, and the sets one foot apart in the row, except those of the ash-leaved kidney variety, which may be six inches less from row to row; Jerusalem artichokes, eighteen inches apart every way.

Fruit.—Always deep trench the ground for planting fruit-trees and plants, but, unless the ground is very poor, they want no manure, except for raspberries, strawberries, and rhubarb—these three like plenty. Raspberries do best in light soil, and should not have their roots dug about afterwards, but may have a coat of manure laid on the top of the ground about their roots every winter. Rhubarb, strawberries, gooseberries, and currants may have a dressing of manure, lightly forked in, taking care not to injure the roots.

Pruning.—Raspberries: as soon as the fruit is all gathered, cut away the old canes on which the fruit has been borne, and thin out the new canes to five or six of the strongest, which will bear the next year's crop. These canes must have the ends cut off in the winter, a foot or two, according to strength. Gooseberries bear their fruit on little short spurs on the old wood, and on the young shoots of the last summer's growth. A good portion of these shoots must be cut away, in a general thinning order, taking them off at about two buds from the base. The older branches are not to be cut at all, unless any are worn out, or cross, or interlace and rub each other. Aim at getting the head of the plant to a good uniform shape, leaving the branches and shoots sufficiently far apart to admit the light and air to it. Red and white currants bear the fruit on spurs on the old wood; all the young shoots of the summer's growth to be cut back to two buds, except the shoot at the end of every branch, which may be shortened back one-half, and any that may be wanted to extend or complete the formation of the tree. Black currants bear the fruit on the young wood of the past summer's growth. Old, exhausted branches, that have few or no young shoots on them, may be cut clean out, and the remainder of the young shoots thinned out to prevent crowding. Apples, pears, plums, and cherries to be pruned as little as possible, merely regulating the growth in young trees, so as to form good-shaped heads, and to prevent crowding, and the crossing and rubbing of one branch against another. The cutting out of large branches should be avoided as much as possible, as tending to make a fruitful tree comparatively barren for some years after.

Our next, and concluding, article will consist of a calendar of gardening operations.

The respective times indicated for the performance of the various operations are, perhaps, more generally suitable for the midland and south midland counties of England. Farther north it will generally be necessary to make the times a week or two later; while south and south-west an earlier date may be taken.

COOKERY.—XCII.

FRENCH DISHES, ETC. (continued from p. 340).

*Chapon au Gras Sel (Capon Cooked in Salt Broth).—*Singe and truss the capon, tie it round with string, and cook it in a stewpan with stock broth, vegetables, parsley, pepper, and nutmeg. When the bird is cooked sufficiently, which will be known when the wing yields to the pressure of the fork, take it out from the vessel and keep it in a warm place. Then strain the liquor in which it has been cooked, boil it to the proper consistence, and pour it over the capon. Sometimes some *marmelade de tomates* or *jus* is added.

*Blanquette de Chapon (Capon in a Ragout of White Sauce).—*Cut the flesh of a roasted capon into strips. Bruise the bones, and stew them in stock broth with parsley, chives, and thyme. After they have been on the fire for three-quarters of an hour, strain off the clear liquor. Then fry in a little butter parsley and chives chopped up, and pour over them the liquor in which the bones were boiled. Put some mushrooms in it, and when they are done, place in with them the slices of capon, and make them hot without boiling. Before sending this dish to table, thicken it with the yolks of two or three eggs beaten up, and flavour it with the juice of a lemon, or else some verjuice.

*Chapon en Croûte (Capon Cooked in Cake).—*Cover the capon with slices of bacon, truss it, and cook it *à la braise*, or else stew it in stock broth, with vegetables, pepper, and spice. When sufficiently cooked, strain the gravy, and boil it to the consistence of jelly, and put in it the capon, that it may become covered with it, and let it get cold. Then put in a stewpan some butter thickened with flour, some milk, salt, pepper, and nutmeg. Boil it down until it becomes thick, and cover the capon with it. Afterwards coat it thickly with bread-crumbs, and cook it under a hot cover until it becomes brown. Send it to table with any sauce that may be preferred.

*Canard Rôti à la Broche (Roast Duck).—*The young duck is usually the most preferred for this purpose. While roasting it should be frequently basted with its gravy, mixed with lemon-juice. Roast duck is usually sent to table with *sauce piquante*.

*Canards à la Braise aux Navets (Ducks Dressed with Turnips).—*Cook the duck in a pan just large enough to hold it, and lined with slices of bacon. Put in with them parsley, chives, and thyme, slices of lemon-peel from which the pips have been removed, two carrots, two onions with two or three cloves inserted in them, and a parsnip. Season with salt, pepper, and spices, and pour over them some stock broth and a glass of white wine. Let the duck simmer over a gentle fire until done, then take it from the pan and place it near the fire to keep warm. Then cook some turnips in a frying-pan with butter and a little sugar until they change colour. Put them in the broth in which the duck was cooked, and boil them until done. Boil down the liquid to the proper consistence, and thicken it with butter and flour, or a little *jus*.

*Canards au Marrons (Ducks with Chestnuts).—*This dish is prepared in a similar manner, substituting roasted chestnuts for turnips.

*Canard aux Petits Pois (Ducks and Green Peas).—*Cook the duck *en braise*. Then divide some onions into two and cut them in slices, brown them in butter with flour, and pour over them the gravy from the duck, and boil them into a thick sauce. Skim and strain the sauce, and serve it with the duck.

Canards aux Navets (Ducks with Turnips) are cooked in the manner directed for *vie aux navets*.

*Canard aux Olives (Duck with Olives).—*Cook a duck *à la braise*. Then strain the gravy, and put into it some mushrooms cut small, and boil it down. Take some olives, cut the soft parts from the kernels in spiral strips, so that

they may retain as much as possible their original form, put them into the sauce, boil them for a moment, and pour the whole over the duck.

*Canard à l'Italienne (Duck Dressed in the Italian Manner).—*Cook a duck *en braise*, and put it near the fire to keep warm. Put into a stewpan two spoonfuls of oil, and some parsley, chives, and mushrooms, cut small. Thicken them with some flour, and pour over them the gravy from the duck. Simmer them for a short time, then skim and strain the gravy, boil it down until it becomes sufficiently thick, and send it to table with the duck.

Canard aux Purée de Lentilles (Duck with Purée of Lentils) is prepared by cooking the duck *en braise*, and using the gravy for the preparation of the *purée*. Duck may also be served with *purée* of peas or chestnuts, prepared in a similar manner.

*Canard Farci (Duck Stuffed).—*Remove the bones from a duck, as far as possible without injuring the skin. Chop up some of the flesh with a quarter of a pound of round of veal, half a pound of beef suet, parsley, chives, and mushrooms. Mix them, season with salt and pepper, and make into a paste with two raw eggs and some milk or cream. Fill the inside of the duck with the stuffing, secure it with string, and cook it *en braise*. Send the stuffed duck to table with a *ragout* of chestnuts prepared with the gravy from the duck.

*Dindon aux Truffes Rôti (Roast Turkey with Truffles).—*This dish is prepared in the manner directed for *chapons aux truffes*. The turkey for this and similar dishes should always be selected young, fat, fleshy, and having a delicate white skin. The preference should also be given to the female turkey, as its flesh is usually the most delicate. When old, turkeys are only fit to cook *en daube*, or *en galantine*.

*Dindon aux Truffes Braise (Turkey with Truffles Cooked en Braise).—*To prepare this dish the turkey is dressed in the manner prescribed for *faisan à l'Angoumoise*.

*Dindon Roulé (Rolled Turkey).—*Cut a turkey down the middle into two portions. Remove the bones without injuring the skin; fill each half with forcemeat, and roll up like a sausage. Cover with slices of bacon, and tie them on with string. Place the turkey in a stewpan, with equal parts of stock broth and water. Add some parsley, chives, thyme, two carrots, two onions in which two cloves have been stuck, a parsnip, salt, pepper, and spice. Let the stewpan remain on a moderate fire until the bird is cooked, then remove it. Now skim the broth in which the turkey was cooked, boil it down, thicken it with butter and flour or *jus*, and send it to table with the bird.

*Cuisses de Dindon à la Sauce Robert (Legs of Turkey with Sauce).—*Score freely the legs of a roasted turkey, and season them with salt and pepper. Then grill them over a gentle fire, and send them to table with *sauce Robert*.

*Dindon en Daube. —*Cover the turkey with slices of fat bacon, and tie it round to keep it in shape. Put it in a stewpan, not too large, in the inside of which some slices of bacon have been placed. Put in with it the feet of the turkey well cleaned, a leg of veal cut as small as possible, four onions in one of which three cloves have been stuck, a parsnip and two carrots cut up. Add also some slices of lemon, parsley, chives, thyme, and season with salt and pepper. Pour over them equal parts of stock broth and white wine, put the lid on the stewpan, and simmer its contents for four hours. When the turkey is done, remove the vessel from the fire, but do not take out the bird until it is nearly cold, otherwise it is liable to have a bad colour. Strain the broth, and if too thin, boil it down until a little taken out in a spoon becomes a jelly when cold. If this jelly is not sufficiently clear, it may be rendered so in the following manner. When the jelly is only

warm enough to become fluid, beat up in it the white of an egg, and then let it boil, and strain it through a fine cloth. This jelly, when cold, is used to garnish the sides of the dish in which the turkey is served.

Dindon en Surprise.—Take a cold roast turkey, and having removed the inside, fill it up with any *ragoût* that may be preferred, and also some of the pieces you have taken out, with some forcemeat balls. Cover the turkey with crumbs of bread mixed with grated cheese. Brown the turkey under a hot cover, and serve it with *sauce allemande*.

Galantine de Dindon (Turkey prepared as a Galantine).

—Take away the bones from a large turkey; begin by removing the backbone, taking care not to injure the skin. Remove some of the flesh from the inside of the turkey and from the legs, especially all the sinews. Mince half of the flesh thus removed, and cut the rest in strips. Then take a piece of veal and some fat bacon, and cut half the meat in strips and mince the remainder. Also cut in strips some *langue à Pécarlate* and a few truffles. Then stretch out the skin of the turkey, and put in it some stuffing composed of the minced materials, seasoned with salt, pepper, and spice. Lay on the stuffing the strips of meat and turkey and truffles mixed together. Cover them with a layer of stuffing, and again put on it some more strips of veal and turkey, and cover with stuffing. Continue to do this until all the strips and stuffing have been used. Then roll up the turkey, taking care that its contents do not escape. Make it assume an elongated form, and cover it with slices of bacon, which are to be tied on. Place the turkey in a pan of the proper size, on the bottom of which some slices of bacon have been laid. Put more slices of bacon on it, together with some minced leg of veal, four onions with a few cloves put in them, the same number of carrots cut in slices, with some parsley, chives, and thyme. Season with salt, pepper, and spice. While this is being done, break up the bones of the turkey, put them in a stewpan with a few spoonfuls of stock broth, and boil them for about an hour, and strain the broth through a sieve. Add a glassful of white wine to this broth, and pour it into the pan containing the turkey. Then let them simmer over a slow fire for about four hours. afterwards proceed as directed for *dindon en daube*.

Hachis de Dindon à la Béchamel.—Cut away the flesh from a roast turkey, and mince it very small. Put it in a stewpan with some boiling *béchamel*, together with some butter, salt, pepper, and grated nutmeg; let it simmer for a short time without boiling, and send it to table with crusts of bread or poached eggs.

Capilotade de Dindon (Hashed Turkey).—Cut a turkey into very thin slices, and arrange them in a stewpan lined with slices of bacon in alternate layers with parsley, chives, shallots, basil, and mushrooms, all cut very small, and seasoned with nutmeg, salt, and pepper. Cover them with more slices of bacon, pour a glassful of white wine over them, and let them simmer at a gentle heat, adding at the last two spoonfuls of salad oil. Thicken the hash with the liver of the turkey broken up, and before sending it to table mix with it the juice of a lemon, or else a little vinegar or verjuice.

Ailerons de Dindon en Haricot (Wings of Turkeys Stewed, with Turnips).—Put a spoonful of flour with a little butter in a pan, and place it over a slow fire until it turns brown. Then cook the wings in it, and afterwards pour over them a quantity of stock broth, because they require to be cooked over a good fire. Put with them also some parsley, chives, thyme, pepper, and spice, but no salt, as the stock already contains a sufficient quantity. When the wings are three parts done, brown some flour in butter, add a little sugar, and fry some turnips in it until they are browned, and add them to the broth in which the wings are being cooked.

THE CARE AND REPAIR OF COOPERS' WORK.

It is not our intention in this paper to describe the trade of the cooper as far as it is required in order to construct tubs, butts, or pails, as that would be out of the province of the household mechanic; but simply to offer such hints and suggestions as may enable him to effect easily, and at a small expenditure of time, cost, and labour, such repairs as may from time to time be needed in order to keep those most necessary domestic utensils—the pail and washing-tub—in proper order and repair. Every housekeeper knows that during dry weather tubs become leaky through the shrinkage of the staves. The next stage of decay is that of the falling off of the hoops, which follows soon, as a matter of course, when, if it be attempted to move the vessel, the whole falls to pieces, and is most frequently speedily consigned to the firewood store. This loss is occasioned simply for want of a little skill in the cooper's art, and as the matter is one which can be mastered in half an hour, with few and simple tools, and at the cost of a few pence, it is one well worthy the attention of the household mechanic.

As we have before observed, one of the most frequent causes of destruction of coopers' work is the shrinkage of the wood of which it is constructed, and consequent falling off of the hoops which secure the whole together. As all are aware, an ordinary pail or washing-tub is constructed of many staves or boards, which form the sides. Now, if we take a washing-tub of circular form, of two feet diameter, and suppose each stave to average three inches in width, the total breadth of wood will be (roughly) six feet, and the number of staves twenty-four. If, therefore, each stave measures one-twelfth of an inch less when dry than it does when wet, the total shrinkage in the six feet, or twenty-four staves, will amount to no less than two inches. Hence, it is no wonder that when allowed to become perfectly dry the tub becomes leaky, and the hoops fall off for lack of sufficient tension to keep them in their proper situation. Of course prevention is better than cure, even in the case of washing-tubs, and the best plan is to keep these useful household accessories in a damp place, or partially filled with water when not in use. For our purpose, however, in this paper, we must suppose that these precautions have been neglected, and we will in the first instance take the case of a tub or pail which has all its hoops and staves in good condition, but so shrunk as to allow of leakage from the now open joints. The remedy here is exceedingly simple. A good stiff socket-chisel, or other broad band of iron or steel, should be procured, as well as a hammer of average weight. The tub should be placed bottom upwards upon some firm support, taking care not to disturb its parts. The hoops should then be gently tapped into something like their required positions with the edge of the chisel alone. When this has been effected, so as to ensure the parts being kept without displacement, the edge of the chisel or driving tool should be rested upon that of the hoop, and struck smartly down, so as to drive the hoop down with it. This operation should be continued all round the vessel, driving the hoop to an equal distance through its entire diameter. The same system should be pursued with all the hoops, when, if properly executed, the tub will be as good and strong as ever. Some persons insert nails under the hoops to support them. This is, however, quite unnecessary, as the tension is quite sufficient to keep them in their places. We may here observe that it is entirely useless to attempt to stop leaks in a tub which is in the condition we have named by means of pitch, white-lead, or putty. The only plan which is really serviceable is that already described.

It sometimes happens that in driving a very old or much rusted hoop it breaks; or one may be broken upon a tub

which otherwise needs no repairs. When this latter is the case, a new one should immediately replace it, or the strain upon those remaining will most probably destroy them also, and allow the tub to fall to pieces. Fitting a new hoop to a tub is a very simple operation, and may be performed in a few minutes. The first thing is to ascertain the diameter of the tub at the point to which the hoop is to be driven, by means of an ordinary measuring tape. We will suppose this to be four feet. In this case a piece of ordinary hoop-iron four feet six inches in length will be required, as well as two or three iron rivets. The next thing will be to mark the required length upon the hoop-iron, as shown at A, A in Fig. 1. This done, the hoop should be bent roughly into a circle, with the points A, A coincident, and the places where the rivets are to be inserted marked upon both ends, as shown at B, B, B in the figure. The ends may now be released, and each pierced with two holes, by means of a circular steel punch; placing the hoop upon a block of hard wood and driving the punch through with a large hammer. The ends should now be again brought together, and the rivets driven through them from the inside of the hoop. The hoop should then be reversed, and so placed upon a solid block of iron (the edge of a large flat-iron will answer every purpose), that the head of a rivet rests solidly upon it, as shown in Fig. 2. The projecting ends of the rivets may then be hammered down until a large burr, or head is formed, which will secure the parts most strongly. The hoop is now ready for use, and may be driven into the required position, as before described. Should the staves of the tub be very smooth, or so dry as to allow the hoop to slip, the application of chalk, rubbed into them, will counteract this tendency, and retain the hoop in its place. It often happens that from accident or decay one or more of the staves become so damaged as to need replacement. This is not a difficult affair if properly managed, but it of course necessitates the taking of the entire tub to pieces. To a cooper this is a simple matter enough, as he can ensure the getting it together again, whether the parts fit into their old position or not. But for the amateur it is important that he should be able to preserve the original arrangement of parts, in order that the difficulties of fitting may be lessened as much as possible. In order to effect this, it is a good plan to number the staves with a pencil or chalk, as shown in Fig. 3, and if in addition to this a wavy line be drawn round the tub, as shown at A, A in the same figure, he will experience no difficulty in arranging the staves in their correct position and order. The numbers will give the proper succession, and the coincidence of the line the right position of each in relation to the others. These lines and numbers must of course be marked before the tub is taken apart. When thus prepared, the hoops should be slackened by driving them toward the smaller end of the vessel, and if this be carefully done the defective stave may often be removed without much disturbance of the other parts. A new stave must be now prepared exactly like the one which it is to replace, using the original one as a guide or model.

It is not needful to use the same kind of wood as

that of which the original stave was made, although of course this is best. When the new stave has been properly shaped it may be inserted in its place and secured by driving on the hoops as usual. The same course may be adopted in replacing any defective portion of the bottom of the tub; or even if required constructing a fresh one altogether. But in this case, as the bottom of the tub is simply secured in its position by means of a narrow groove running round the lower ends of the staves, it is not often necessary to take the whole to pieces, as it can be removed by slackening out some of the lower hoops.

In conclusion, we would observe that one of the most effectual methods of preserving coopers' work in good condition is to keep the lower part of each vessel thoroughly well painted; especially round the junction between the bottom and the sides. The usual and ordinary method of painting is of little or no use, as the paint is of such a character as prevents it properly resisting the action of water. The best preservative is a paint made of red-lead and boiled linseed oil, which should be well worked into the wood, allowing it to absorb as much as it will take up. This painting should also be used for the hoops, and it will be found that if thus properly treated a set of tubs and pails will last for years.

The American coopers' work, which is now so common in this country, is generally constructed of firwood, and is consequently not nearly so durable as that of home manufacture, which is mostly of oak. All the precautions against excessive dryness and decay, therefore, need the utmost attention in this case, and proper care being exercised, there is no reason why this kind of work should not render good service. But it must not be expected that it will equal in strength and durability good sound English work.

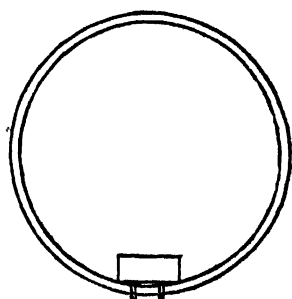


Fig. 2.

Fig.

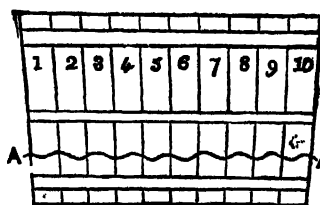


Fig. 3.

JEWELLERY.—III.

SILVER.

SILVER, the most precious metal next to gold, is characterised by its perfectly pure white colour. Its density is 10.47, but can be brought by hammering to 10.54. It is very malleable, and is capable of being beaten into leaves of less than one-hundredthousandth of an inch in thickness, and of being drawn into very fine wires. Its tenacity is considerable, as a wire of one-hundredth of an inch in diameter can support a weight of twenty-three pounds. Although harder than gold, it is much softer than copper, so soft, indeed, that it can be cut with a knife in its pure state. Its hardness is increased by its amalgamation with a small quantity of copper.

It is fusible at a full red heat—about 1870°. In consequence, however, of its pure white colour and brilliant lustre, its reflecting power for light and heat is such that it does not fuse in the focus of a mirror sufficiently powerful to melt platinum. From the same cause its radiating power is very low. A liquid contained in a silver vessel, therefore, retains heat longer than if placed in a vessel composed of another metal.

Silver is very useful in works of art, and peculiarly

adapted not only for coinage, but for services of plate, on account of its resistance to the acidity from fruits, &c., or from any substance used as food. It is found in great abundance in almost every quarter of the globe, both in its native state and alloyed with other metals, principally lead.

Native silver, although generally alloyed with a small quantity of other metals, when scratched, exhibits the pure white colour which is its chief characteristic when in its pure and refined state. It is, however, less malleable and ductile than pure silver. It is often found crystallised in cubes and octahedrons, frequently in amorphous masses, and at other times in thin leaves. It has been, though but rarely, found in the argillaceous schists of the transition rocks, but more often in the primitive formations, such as granite and gneiss.

Silver is not acted upon by oxygen at ordinary temperatures. If exposed, however, to an atmosphere impregnated with a very small portion of sulphide of hydrogen, which is generally the case to a greater or less extent in the air of chambers heated by coal-fires, it becomes tarnished. When melted in open vessels it has the extraordinary property of absorbing about twenty-two times its own bulk of oxygen. When solidifying, it disengages the oxygen, thus probably producing that sort of metallic vegetation which takes place on the surface of a silver button after having been suddenly cooled in the cupel. This, however, does not occur when the silver has been alloyed with a small proportion of copper, gold, or lead; even one per cent. prevents the absorption of oxygen on which it depends. It may be demonstrated on a smaller scale that this is the cause of the phenomenon, by heating in a crucible to a white heat a considerable quantity of silver, and projecting upon it a little nitrate of potassa, which will produce an atmosphere of oxygen by its decomposition. If the crucible is then covered, and the heat retained for some time, upon removing the lid, and plunging the vessel into a tub of water, with an inverted bell-glass filled with the same liquid placed over it, the oxygen which is disengaged will collect in the bell-glass, and is capable of being measured. This experiment, however, is said not to be without danger, as the oxygen may become disengaged all of a sudden, producing a violent explosion. When subjected to a very high temperature, silver rapidly volatilises; but in a state of fusion it may be crystallised, and in the latter case it assumes the cubical form.

When fused with the alkalis, it does not readily absorb the oxygen of the air. It rapidly combines with sulphur; and hence it is so easily tarnished by contact with air containing even a small proportion of sulphide of hydrogen. The simplest method of cleaning articles so tarnished is to plunge them for some time into a solution of manganate of potassa, which is obtained by heating to redness a mixture of potassa and binoxide of manganese in equal parts. The manganate is thus decomposed, and, reacting on the sulphur of the sulphide of iron, oxidises, and causes it to dissolve. It can only be amalgamated with iron with very great difficulty, and when fused with it the alloy separates into silver, retaining about one-thirtieth of iron, and iron retaining one-eightieth of silver. The latter is of a peculiarly hard and crystalline nature. An alloy is formed from the fusion of silver and steel which appears perfect while in fusion, but when cooling, the globules of silver exude from it, thus showing the weak affinity of the metals. The greater part of the silver volatilises at a very high temperature, but a portion, equal to about one in five hundred, remains, forming a perfect alloy known as silver-steel.

An alloy of lead and silver is very brittle, and dull-coloured, and the lead can be separated by cupellation. Silver readily combines with zinc, and produces a brittle, bluish-white, granular alloy. Combined with tin, it forms

a white, hard, brittle alloy; as also with antimony and with bismuth, the alloy is brittle, and of a yellowish white colour. It compounds with arsenic, but more especially with mercury. Red-hot silver dissolves when thrown into heated mercury, and when eight parts of mercury and one of silver are thus combined, the result is a granular soft amalgam, the density of which exceeds the mean of its components. But the most important alloy of silver is that which it forms with copper. It is seldom employed in its pure state, on account of its softness. While the colour of the metal is scarcely if at all impaired by alloy, it gains considerably in hardness and ring by the addition of a small proportion of copper. A mixture of seven parts of silver and one of copper has a decided white colour, although of not so pure a tint as that exhibited by virgin silver. Plate and coin are made from silver alloyed with copper. The legislature of the country where the mixture is worked determines the proportions of the respective metals. The same alloy is used in this country by the authorities of the mint in the public coinage and the silversmith in the manufacture of plate, &c. This alloy is composed of 111 of silver and 0.9 of copper, and is known by the name of standard silver. That is to say, in a pound troy of the standard silver of this country there are 11 oz. 2 dwt. pure silver, and 18 dwt. of copper. The calculated density, according to the mean of the components of standard silver, is 10.5; its real density is 10.3, so it is evident that the metals dilate in forming an amalgam.

All silver vessels are stamped with the hall-mark by the Goldsmiths' Company, for the prevention of fraud. The company charge the sum of one shilling and sixpence per ounce for the assay of the articles, and the impression of their stamp attesting its quality as standard silver. A small sum is retained by the company as compensation for trouble incurred in making the assay; but the larger proportion of the money made in this way passes to the Government.

There are three different standards in France. In the silver currency of the country the alloy used is composed of nine parts of silver and one of copper; for plate a mixture of 9.5 parts of silver to 0.5 of copper is employed, whilst an alloy of eight parts of silver to two of copper is allowed for the smaller articles of silver used as ornaments.

The silver of ancient and of many Oriental coins is nearly pure, containing only traces of copper and of gold.

Silver alloyed by copper, such as standard silver, being exposed to a red heat in the air, becomes quite black. This proceeds from the formation of a superficial film of oxide of copper, which is removable by immersion in hot sulphuric acid. A film of pure silver then remains, of a beautiful whiteness, which is called blanché or dead silver. This process is usually employed in order to improve the colour of objects formed of alloyed silver. When the article is nearly heated to redness, it is plunged, while still hot, into water acidulated either with nitric or sulphuric acid; and the external oxide of copper is thus entirely removed. By means of rubbing with a burnisher, the matted appearance of the pure silver, which now forms the surface, is replaced by a bright polish. The blanks for coin, before they are struck, are also treated in this manner. Hence the whiteness of new silver coin, and the darker appearance of the projecting portions after wear, occasioned through the alloy being uncovered. Bisulphate of potassa acts in the same way as the dilute sulphuric or nitric acid; and articles of plate are often deadened or matted by being boiled therein.

Silver solder is constituted of 667 parts of silver in proportion to 233 of copper and 100 of zinc.

The process of plating alloys and other base metals, closely resembles the processes for gilding described under the head "Gold."

SAVOURY PIES.

Bride Pie.—Boil some veal sweet-breads and pieces of lamb in water, until they are half done, and cut them into slices. Mix with them some slices of blanched ox palate, streaky bacon, a pint of oysters, and some roast chestnuts, and season them with salt, mace, and nutmeg. When the pie is full, lay slices of butter on the top of it, cover it with paste, and bake it. When done, cut up the lid, and put into the pie some raw eggs beaten up with butter, the juice of a lemon and white wine.

To make a Pork and Apple Pie.—Cut the pork in thin slices, and season it with salt and pepper, and put it in a pie-dish with sliced apples. Pour over them some white wine, sweeten with sugar, add some butter, and cover the dish with pie-crust. Afterwards bake the pie in a hot oven.

Lamb and Currant Pie.—Chop small some slices of lamb with sweet herbs. Pour them in a dish with currants, and season them with salt and nutmeg. Then beat up some eggs in white wine, and pour it over them. Cover the dish with paste, bake it, and send it to table with white wine and sugar.

Rabbit Pie.—Make a paste of half a pound of suet dripping, lard, or butter, and half a quarter of flour, and roll it out into a sheet of the proper thickness. Smear the edge of a pie-dish with dripping, and cover it with a strip of paste. Lay at the bottom of the dish some potatoes cut in slices, and having cut up the rabbit, put it on them, season with pepper and salt, pour on them about half a pint of liquor in which meat has been boiled, if you have it, or plain water. Cover the pie with paste, and bake it for two hours.

Ham Pie.—Boil a ham until tender, and having taken off the skin, put it in a deep pie-dish, with half a pound of butter and a pint of water, cover it with puff-paste and bake it.

Hare Pie.—Skin, cut a hare in pieces, and season it with salt and pepper. Put it into a pie with a pound of beef suet, or marrow cut small, together with some marjoram, parsley, and shalots, and bake it. While the pie is still hot, open it, and pour into it some melted butter.

Herring Pie.—Select some herrings with soft roes, slit them down the middle, and take out the bones, and season them with salt and pepper. Cover the bottom of the pie with some butter and flour, and cover it with some apples and onions, cut very small and well mixed. Lay the herrings on it, and cover with more of the mince. Sprinkle the surface with grated nutmeg, and lemon-peel. Cover it with paste and bake it.

Lumber Pie.—Mince together equal weights of cold meat and suet. Season it with sweet herbs cut small, and some spice and salt. Make them into a paste, with raw eggs, and roll it into balls the size of small eggs. Then put them into a pie with raisins, currants, and butter, and bake it. Before sending it to table, pour into it some wine boiled with sugar and butter, and afterwards mixed with a few raw eggs.

Dartmouth Pie.—Mince a pound of beef suet with twice that quantity of lean mutton, and season them with salt and nutmeg, mix with them a pound of currants, and four ounces of sugar; put them into a dish, cover them with paste, and bake them for an hour and a half.

The paste for this pie is prepared by boiling one part of butter, and two of beef suet in water, and then kneading it with the flour.

Dowlet Pie.—Mince some roast or boiled veal with beef suet, and sweet herbs, and season them with nutmeg, and spice. Make them into a paste with some raw eggs beaten up, arrange them in the pie, and throw plums over them. Bake the pie, and while still hot, pour into it some white wine, sugar, and butter.

Potato and Sausage-meat Pie.—Well butter the inside

of a pie-dish, and fill it with potatoes, mashed in butter, mixed with sausage-meat. Season it with salt and pepper, cover it with paste, and bake it.

Another Way to Make a Mashed Potato Pie.—Cover the inside of the pie-dish with butter, and put in some mashed potatoes, with pieces of marrow, and hard-boiled eggs cut in pieces. Sweeten it, and add some pieces of candied orange, citron, and lemon-peel. Cover the pie with paste and let it bake in a moderately-heated oven.

Marrow Pies.—Cut some veal and suet into mincemeat, season them with salt, pepper, and nutmeg. Mix with them some boiled veal sweetbreads, cut small, some hard-boiled eggs cut into quarters, sliced potatoes, and pieces of marrow. Put these materials into a pie-dish, cover them with paste, and bake them at a moderate heat.

Potato Pie.—Cover the inside of a dish with butter, and put in some well-boiled potatoes. Then lay over them some marrow, hard-boiled eggs, blanched almonds, dates, and pieces of candied orange, citron, and lemon-peel, and some spice. Put more butter on the surface, cover the dish with paste, and bake it.

Another Way to Make Potato Pie.—Mix the boiled potatoes with salt, pepper, nutmeg, and cinnamon, and put them in a pie-dish, previously buttered. Lay on them some marrow, sliced dates, butter, and lemons cut in slices, and proceed as previously directed.

To Make Paste for Meat or Fruit Pies.—Mix the eighth part of a peck of flour with some cream, and raw eggs; then add half a pound of butter broken in pieces, which must not be too small, and roll the paste lightly. Paste for custards is made by mixing the flour with boiling water and butter, and in which sugar has been dissolved, if necessary. If this is done, it will be found to increase the stiffness of the paste. *Paste for tarts* is made in a similar manner.

A Rich Paste for Pasties may be prepared by the addition of a little more butter to the same quantity of ingredients, the materials being then well worked together with some cold water.

An Excellent Puff-paste is made by mixing the white of four eggs, and half a pound of butter, with six handfuls of flour. Make the paste wet with cold water, roll it out, and lay on it half a pound more butter, broken into pieces. Fold up the paste, sprinkle it with flour, and roll it out again. Then again cover it with another half-pound of butter, and fold it up. Continue to do this until three half-pounds of butter have been used.

White Puff-paste is made by making a pound of fine white flour into a paste by the addition of the whites of three eggs beaten up with cold water. Mix the paste gradually with a pound of butter, and roll it out five or six times, a portion of the butter being added each time. It should be remembered in making this paste, to keep the butter as cool as possible in summer; but in winter, to soften it by beating it out. When it is desired to have a *flakey paste*, the following method may be employed. Beat up one egg in froth with water, make a pint of flour into paste with it, and roll it out with an ounce of butter. Repeat this for six times, adding an ounce of butter each time.

Another Kind of Puff-paste is thus made:—Mix the flour with water, salt, and a raw egg. After kneading it well, roll it out into a thin sheet, and spread an equal weight of butter over it. Double over the paste so that the butter may be in the middle, and then roll it out thin. Continue to fold up, and roll out the paste for five or six times, after which it will be ready for use. This paste is very suitable for small pies baked in patty-pans.

To Prepare Almond Paste for Crackling Crust.—Beat up four handfuls of blanched almonds in a mortar, the white of an egg, and a little water being occasionally added, in small quantities at a time. Pass it through a sieve, and lay it in a dish, and allow it to remain until it

becomes very pliable, and capable of being rolled. What is commonly known as short paste, is prepared by rubbing a pound of butter into a quarter of a peck of flour, and making it into a paste with milk or water.

GARDENING.—LX.

THE COTTAGER'S GARDEN (*continued from p. 352*).

CALENDAR OF OPERATIONS.

January.—The work of this month is chiefly wheeling out manure, and digging and trenching all vacant plots of ground. Prune fruit-trees; lay out seed-potatoes to sprout, in full daylight and cool position, but keep them safe from frost.

February.—Prune gooseberries and currants early in the month, if the weather is mild and the ground in good condition. Early peas, broad-beans, spinach, and parsnips may be sown also; cabbage, savoy, and radishes, in beds in a sheltered position, to be covered with a little litter until the seeds are up, and afterwards during frost, until they get strong.

March.—Sow peas twice, beans, onions, for which the ground should be trodden or rolled firm, especially light soils; parsley, Brussels sprouts, borecoles, early broccolis, spinach, and radishes; celery and lettuce on a warm border. Plant potatoes, Jerusalem artichokes, Tripoli onions, and rhubarb. Turnips and tomatoes also may be sown this month.

April.—Sow leeks, radishes, carrots, beet, broad-beans, peas, spinach, lettuce, and celery; and towards the end of the month a few dwarf kidney-beans and scarlet-runners. Prick out young celery plants as soon as large enough to handle, on rich ground, in a warm position, nine inches apart. Plant out autumn-sown cauliflowers; earth up potatoes.

May.—Thin out carrots, onions, beet, parsnips, and parsley, and hoe the ground between the rows. Sow the main crop of kidney-beans and scarlet-runners. Sow cucumbers for pickling. Plant Brussels sprouts, savoy, and cabbage; also celery as soon as the early peas are cleared off.

June.—Plant out more celery, all winter stuff of the cabbage tribe, as fast as room can be found for them; finish earthing up potatoes; sow coleworts for use during the winter.

July.—Give celery plenty of water in dry weather, and begin to earth up forward crops on light soils, but on heavy soils it should make more growth first. Keep the surface of the soil loose, by hoeing or forking among all growing crops, especially in very dry weather, as they will then not suffer so much from want of water. Sow turnips.

August.—Sow prickly spinach, to stand the winter, the beginning of the month; and towards the end of the month, Tripoli onions, cauliflowers, hardy lettuces, radishes, turnips, and cabbage for spring cutting. Plant out coleworts; lift potatoes as soon as ripe; plant strawberries, by runners from the old plants, on deep-trenched, well-manured ground.

September.—Harvest onions as soon as fit. Do not let potatoes stop in the ground a day after they are fit to lift, if it can be helped. Thin out spinach, and prepare ground for a crop of cabbage, to be planted next month.

October.—Plant out cabbage and lettuce, the latter in a warm position. Lift and store carrots and beet; parsnips eat better if kept in the ground. Earth up celery; plant all kinds of fruit-trees and bushes as soon as possible now.

November.—Manure, dig, and trench, as fast as oppor-

tunities for clearing the ground occur; the longer the soil lies exposed to the weather the better it will be at seed-time.

December.—Continue the work of last month, and prune fruit-trees if the weather is not frosty. Cut and mend hedgerows.

LIST OF FRUITS.

Apples.—*Kitchen*: Blenheim Orange, French Crab, Hawthornden, Yorkshire Greening, Nonsuch, Dutch Codlin. *Dessert*: Devonshire Quarrenden, Sturmer Pippin, Kerry Pippin, Fearn's Pippin, Syke House Russet, Winter Pearmain.

Pears.—Williams, Bon Chrétien, Louise Bonne of Jersey, Winter Nelis, Josephine de Malines, Chaumontel, Marie Louise; with Cattilac for the purposes of baking or stewing.

Plums.—Washington, Victoria, Early Orleans.

Cherries.—May Duke, Black Tartarean, Bigarreau, Black Eagle; with Kentish and Morello for cooking and preserving.

Grapes.—For out-doors, Dutch Sweetwater, Pitmaston Cluster, Miller's Burgundy.

Gooseberries.—Whitesmith, Golden Drop, Keen's Seedling, Hopley's Companion, Hepburn's Beauty, Massey's Heart of Oak; with Rough Red and Warrington for preserving, and Bright Venus and Rumbullion for bottling—the whole of them being good for cooking in a young green state, or eating when ripe.

Currants.—*Red*: Raby Castle, Red Dutch. *White*: White Dutch, White Grape. *Black*: Black Grape, Black Naples.

Raspberries.—Fastolf, Fillbasket, Red Antwerp, Prince of Wales.

Strawberries.—Black Prince, Oscar, Keen's Seedling.

Rhubarb.—Victoria and Linnæus.

LIST OF VEGETABLES.

Where more than one kind of any vegetable is named, they are placed in the order of time of sowing, the earliest being first.

Beans.—Broad, Mazagan, Longpod.

Beet.—Carter's St. Osyth.

Borecole, or Kale.—Cottagers' Kale, Albert Sprouts, Fearnought.

Broccoli.—Walcheren, Dancer's Purple Cape, Snow's Superb White, Purple Sprouting, Brimstone.

Brussels Sprouts.—Imported.

Cabbage.—East Ham, Enfield Market, Rosette Colewört.

Carrot.—Intermediate, Long Surrey.

Cauliflower.—London Market.

Celery.—Cole's Dwarf Red, Cole's Crystal White.

Jerusalem Artichokes.

Kidney Beans.—Negro Longpod, Sion House, Scarlet Runners.

Leeks.—Musselburgh.

Lettuce.—Carter's Giant White Cos, for spring and summer sowing; Hardy Hammersmith, for autumn sowing.

Onions.—James's Keeping, for spring sowing; Flat Tripoli, for autumn sowing.

Parsley.—Myatt's.

Parsnips.—Hollow Crowned.

Peas.—Daniel O'Rourke, Champion of England, Warner's Emperor, Scimitar.

Potatoes.—Myatt's Prolific, Ash-leaved Kidney, Early Shaw, Fortyfold, Dalmahoy, Red Regent, Fluke.

Radish.—Early Short-top, Red and White Turnip.

Savoy.—Globe.

Turnip.—Six Weeks, Jersey Navet, Red American Stone, Chirk Castle.

CROCHET.

III.

We have already, in the HOUSEHOLD GUIDE, given various illustrations of crochet work, and it may now be acceptable to give simple directions—for the benefit of the younger members of the family—for those few and simple stitches by means of which the elaborate and most beautiful lace-work, known as Irish crochet, can be made. Some persons have come to the erroneous conclusion that crochet is out of fashion, because the commoner sorts are no longer displayed as worthy of admiration, or, indeed, much esteemed. The reason is not because embroidery and point lace work have been introduced, but because fancy-work itself has received the impetus of improvement, and ladies now display real works of art as the product of the needle. Crochet will always hold its place as an art of needlework, but it is the rich raised work in stars or flowers, or the delicate tracery of the Irish lace, which is valued. Anyone who can work simple crochet patterns well and quickly, may readily learn to work the Irish lace, which is neither difficult nor tedious, being so much made up of mere chain work.



Fig. 1.

The stitch once mastered, easy patterns, worked in squares from designs sold at a penny each, form good practice. Simple round d'oyleys also should be made, as in the round work a different style of crochet, necessary to perfection, is mastered. Various books of patterns are published, full of very handsome designs. These may be also used as tops for pin-cushions; and if the white d'oyleys are mounted on velvet strained over mats, and the crochet-work can be picked off and washed, as occasion requires. We also recommend the making of a few oval and a few square d'oyleys, as a good deal of the principle of the construction of patterns is learned in this way. So, also, working lace the narrow way teaches construction. Crochet has the following advantages over knitting—first, you see your pattern as you work it, and are aware with what exact intention every stitch is put in; secondly, with close observation, any piece of work can be copied by looking at it; thirdly, it is hardly possible to drop a stitch; fourthly, much more beautiful and artistic work can be produced by this method of working. The simple patterns first worked by a young child or a beginner can generally be made use of in a house as bread-cloths, mats, or antimacassars. If such work is not desired for these purposes, if a little girl has done it, let her appropriate it for a doll's counterpane or cradle-curtains, &c. An adult beginner will probably find some friend or acquaintance who will set store by and make use of her first efforts.

Having procured, a moderate-sized needle and strong cotton—the needle rather fine in proportion, because large needles make coarse, common, loose-looking work—learn the first stitch. This is called chain-stitch. Tie the cotton round the needle firmly, then with the hook of the needle pull the cotton through this loop, discharging it from the needle. The cotton you have pulled through this loop forms a second loop in your needle. Again pull the cotton through that. In this manner you may



Fig. 3.



Fig. 2.

progress, making a chain as long as you please. Fig. 1 illustrates the work. You see there a loop upright. If your needle is thrust in it, you can readily draw through it the end of the cotton, thus making another loop. Having made a chain as long as you wish, finish it off by cutting off the cotton, pulling the end through the last loop and drawing it tight.

The next stitch to the chain is plain crochet (see Fig. 2). Tie the cotton round the needle a little way up the stem, to make a firm commencement. You tie it a little up the stem of the needle, because that part is rather thicker; and when the loop thus made is brought down to the point of the needle, to be worked into the next stitch, it is not so small as to make the process of pulling the cotton through it hard and troublesome. Having this loop on your needle, thrust the point of the needle through the first loop of the chain already made. Draw the cotton through the loop of the chain, and through the loop on the needle. This completes a stitch, and leaves you with a loop on the needle. Insert the needle into the next loop

of the chain, pull the cotton through it, and also through the loop on your needle. This makes the second stitch. Continue making as many plain stitches in this way as you desire. A beginner should repeat these plain stitches to the end of the row, or even make several rows of them. Finish off as you did the chain, by pulling the cotton through the last loop.

Double Crochet (see Fig. 3).—Tie the cotton to the needle, as before. Insert the needle in the first stitch of your previous work, and draw a loop through. So far, it is just as you commence a single crochet-stitch; but you

do not draw the loop through the other, you keep both loops on your needle. You then with the hook draw the cotton through the two loops in the way shown in Fig. 3. You have now a loop on your needle,

made by the cotton thus drawn through. Insert the needle in the next stitch of your previous work; draw the cotton through. This, again, makes two loops on the needle. Draw the cotton through the two loops. You have thus formed two stitches. Continue to work a few rows in this manner, for practice.

Triple Crochet (see Fig. 4).—Tie the cotton to the needle, to commence. Now twist the cotton round the needle. Then insert the needle into the first stitch of the work, and draw the cotton through it. This is equivalent to having three loops on the needle, counting the twist of cotton as a loop. Draw the cotton through the first two. This leaves again two loops on the needle. Again draw the cotton through these two loops. One stitch is thus formed. You have now a loop on your needle. Twist the cotton round the needle; insert the needle in the second stitch of the previous work; draw the cotton through. You have now equivalent to three stitches on the needle. Draw the cotton through the first two. You have now two loops on the needle. Draw the cotton again through these two. To finish off, make one chain after a triple crochet-stitch, cut off the cotton, pull the end through the loop, and draw it very tight. Triple crochet is also called long-stitch.

The best practice for learning to work crochet well,

having mastered the stitch in cotton, is to buy a bone crochet-hook, worth one penny, and an ounce of double wool, and make a pair of cuffs of it in double crochet. To do this, work a chain, and unite it in a ring by working a plain stitch through the first one of the chain. When united the chain must be more than large enough to slip over the hand by about six stitches, because it shrinks in size in working. On this chain work round and round plain double crochet stitches. Work another pair of these cuffs in triple crochet, and a third pair in plain crochet. It is better to practice at first in wool, because beginners are apt to draw up the cotton too tight, and so be unable to work a second row on the first one. Wool requires a lighter touch, and shows immediately any irregularity in the stitches. These little under-cuffs are always sure to be useful. Nothing is more encouraging than to find your work useful. You may vary the making of cuffs by the making of bags or satchels in wool. Shaded double Berlin is the prettiest for these. Get an ounce of green and an ounce of violet-shaded wool. Commence with the green; work a chain large enough for the size round of your bag. Unite it. Then continue working round on round, using either double crochet or long stitch. Alternately double crochet and long stitch is pretty, but we advise a learner decidedly to keep to one of the two, as what is wanted is to practise the same stitch continuously, to acquire facility and evenness. Work one-third of the depth of the bag with green. Then break it off, and tie on the violet. Work another third of violet, and finish with the green. You must turn your work wrong side out, and unite the bottom with a row of plain crochet work. Holding the two ends together as if you were to sew them, insert the needle through a loop of each, choosing corresponding loops, and pull the wool through both, and through the loop on the needle. Make a lining; sew it to the mouth of the bag, which is to be bound round with a green cord, and have handles made of the same. You may also work garters in short rows backwards and forwards, of single or double wool.

The next work to be recommended is single, double, and triple open crochet. Make a chain. Work a row of double crochet. This is for a foundation.

Single Open Crochet.—Work one long stitch. Make a chain. Miss one stitch of the foundation. Repeat to the end of the row. Work the second row the same, but bring the long stitches over the chain stitches of last row.

Double Open Crochet.—Make a foundation. Two long stitches, worked into successive loops of the foundation; two chain; miss two. Repeat to the end of the row. Work the next row with two long stitches over the two plain of the row before.

Triple Open Crochet.—Make a foundation. Three long stitches worked into successive loops of the foundation. Three chain. Miss three of the foundation. Repeat to the end of the row. In the second row, work the three long over the three chain.

We recommend the learner to make a couple of bread-cloths of double and single open crochet. Make a lace the narrow way, and sew to edge of each. Or edge them with a double crochet worked into every space made by the chains all round, and enough chain between to make a slight scallop. Make another row round, a double crochet in each loop, and enough chain between to make a larger scallop. A third row should be made also on the same principle. After this, work a few round d'oyleys, taking care to keep them flat. We recommend this advisedly, for if you at once proceed to work from the paper patterns, you will be liable to acquire a mannerism, as it were, in your work, and be unable afterwards to execute round patterns. After the round d'oyleys, work at least two or four square ones. Then follow the square patterns. They are worked by allowing two chain stitches between every open square, and the equivalent of two triple stitches in solid squares.

Thus, to a succession of solid squares, allow three triple stitches to each square, and one over to conclude. The triple are worked over the triple in the open squares.

Antimacassars worked in single wool, or triple open crochet, look very pretty in drawing-rooms. They should match the furniture. With green, green and orange, or deep gold-colour; with pale blue, blue and white; with dark blue, dark blue and straw-colour; with pink, pink and white; with pale sea-green, green and white; with crimson, crimson and straw-colour. Make a chain the length of the antimacassar; work four rows of the lightest colour; nine rows of the dark. There are to be three of the broad stripes and four of the narrow, both edges thus being of light stripes. Make tassels of the wool of alternate colours, and fix them at the two short ends, between every cluster of long stitches. Or begin with the dark wool; work seven rows, then five rows of light. The antimacassar is complete with four wide stripes and three narrow, worked the long way. The dark colour is thus at both edges. Fringe as before.

Abbreviations used in Directions for Working Crochet.—Ch., chain; p. c., plain crochet; d. c., double crochet; tr., triple crochet, or long stitch; dot, this is only worked in the centre of a chain. Thus, "five chain, dot, five chain;" means five chain, work three more chain for the dot, and one plain into the last stitch of the five, to make a little dot. Or, in other words, you must make eight chain and one plain, four stitches back from the needle, or the fifth stitch from commencement. Make five more chain.

DECORATIVE GLASS WORK AS A TRADE.

AMONGST the trades now brought most prominently into notice are those which belong to what are called the fictile arts. Glass work, pottery, and porcelain or china, form a considerable section of almost every fine art and industrial exhibition, and the manufacture of glass always secures a very large degree of interest.

We have already (vol. iv., p. 266) given a sufficient general description of the process of glass-making, and shall confine our present observations to a department of the art which affords more scope for artistic talent.

The production of church windows is of course the greatest achievement in the business of glass manufacture; but there the skill required is chiefly that of the artist added to the scientific knowledge of the chemist.

Many enthusiastic admirers of our old cathedral windows profess little admiration for modern work in stained glass, and some of them assert that the art of producing such gem-like lustre, purity, and richness as the old masters gave to their material, is nearly if not altogether lost. It must be admitted that modern windows do not compare to advantage with those that were made before the end of the sixteenth century; and though we are disposed to think that greater time and patience enabled the old glass-workers to obtain their glorious tints, and to match and piece them with more beautiful effect, we must acknowledge that if the art be not lost, it is now so seldom practised that the introduction of a modern window into an old cathedral would only be to court disparagement of our more rapid manufactures. It must be remembered that we are now speaking not of *stained* but of *coloured* glass, such as is used in the grand works that adorn cathedrals and large churches. The glass in these windows is coloured throughout, while *stained* glass is only white glass with a coloured surface placed upon it by a process which we shall presently describe.

Coloured glass is produced by the addition to the melted metal of various ingredients, most of them in the form of

minerals. Red is produced in its different tints by various preparations of copper, green by iron, blue by cobalt, amethyst by manganese, and the glorious ruby colour by gold; while the fine opaque white is the result of the addition of tin, and yellow by the admixture of soot. Our readers will have observed that every great window, however elaborate the design, is composed of a number of small pieces, joined together by means of strips of lead, and the nice arrangement of the various parts, with their contrasted or harmonious tints, so as to make one beautiful design, to which the dark outline of the lead seems to add a certain force, requires the utmost skill, as well as artistic perception.

The first thing to be done is to make an outline drawing of the window—that is, of the space to be filled—and within this to sketch the design of the picture, with the colours properly indicated in the various parts. From this “working drawing” another design is made, of the full size of the window, with a broad outline, showing where the strips of lead will have to be used for holding the various pieces of glass. This part of the work is of the greatest importance, since much ingenuity must be used in order to bring these dark bands into the shadows, or in portions of the design where they will fall most naturally into the general form of the figures, and not mar the effect by cross outlines. When this is completed, another drawing is traced from it, showing *only* the course of the leaden strips. On this, which is called the “cutting” drawing, the artist marks the various colours to be used, and the glass-cutter cuts out each piece separately, by placing a sheet of glass of the proper colour on each space, and following the outline exactly with his “diamond.” These pieces are then taken to the large design or cartoon, upon which each separate portion is laid in its proper place, and the outline of the entire picture is painted upon them in “vitrifiable” colour—that is to say, in a kind of colour that, on being exposed to great heat, will melt, and become incorporated with the surface of the glass. The operation of painting the outline is like drawing upon a “transparent slate,” and when it is completed, the pieces of glass are placed in a “muffler,” or furnace, filled with shelves, where the design is “burnt in.”

These pieces of glass have now to be put together to form the window; and to do this the painter covers the large design, or part of it at a time, with a sheet of clean, white glass, so that he may see the drawing; and on this sheet of glass lays each coloured bit in its proper place, fastening them all together with drops of beeswax or melted resin. The sheet of transparent glass with the window or portion of the window resting on it, is then carried to an easel, and the shadows of the picture are painted in. These shadows are burnt in the same way as the outlines, and if any yellow tints are required, they are also added by the application to the surface of a preparation of silver; where there are deep shadows, the operation is repeated until the picture is complete. The process of “leading” has now to be performed by a workman, who lays each separate piece of coloured glass in its proper place on the “cutting” drawing, which shows him exactly where his leaden strips should come. These strips are made by being rolled through a vice, which gives them the proper form. Looking at the end of one of the strips, it will be seen that it is like the letter H, the grooves at the sides being of the right width to admit the thickness of the glass. The strips are cut into convenient lengths, are fitted round the various pieces of the picture, the joints are soldered on both sides, a liquid cement is inserted under the overlapping edge of the lead, and when this is hardened, the window is complete, and is fixed in the space it is to occupy. If it is a large one, the work is further supported by light iron bars, to which copper wires soldered to the lead are fastened. It will be seen from the foregoing description that the production of a glass

window is the work of several persons, each of whom takes his particular department, and that the artistic design is apart from the other operations. The artist must, however, to do his part successfully, understand what are the mechanical processes necessary for its completion, and though, of course, a window may be made apart from the glass-works, and with coloured glass purchased at the dealer's, the separate pieces must go together to the furnace for their final preparation.

At the large glass furnace the labour is often very severe, and the wages are high, because the work, like that of the iron puddlers, is a great strain on the constitution. There are men, skilled hands, who can earn three to four pounds a week, but ordinary labourers obtain less, and the higher rate of pay is, of course, less frequent. In window manufacture, the artist, like other artists, may obtain a reward proportionate to his talent, and may either be paid for each design, or take a retaining salary at one particular manufactory. Of course, to be at all successful, he must have studied carefully the beautiful examples of ancient windows, the work of the thirteenth and fourteenth centuries, and as many of the best of these are only to be found in Italy and other parts of the continent of Europe, it will be necessary for him to travel to attain the highest proficiency. The mechanical draughtsmen, and the workmen employed in “leading up,” &c., are paid at various rates of wages; the draughtsmen often being students who intend one day to become designers.

It is necessary, however, to say a word on the subject of that commoner kind of coloured glass of which inferior windows are made. These are not made of a number of small pieces, but are stained in the sheet. The design having been drawn on paper, the glass is laid on it, and the outline traced with a brush and vitrifiable colour. The parts intended to be red, yellow, or orange, &c., are then coated (on both sides if the tint is to be deep) with a mixture of silver, antimony, and oxide of iron. The glass is then placed in a furnace at red heat, the tracing colour is fused, and adheres to the glass. The silver and antimony sink into the surface, leaving the oxide to be brushed off. Then an enamel is applied, the glass is again fired, and the surface colour, the enamel, and the body of the glass become firmly united. This glass requires to be painted if particular colours are desired, and it is then, of course, less transparent. Another method of producing cheap coloured glass is that known by the name of “flashing,” a skilful and beautiful process. The workman at the furnace mouth takes upon his blow-pipe a small lump of coloured glass, and over that a large lump of white, so that when he blows his glass cylinder the inner side of it is covered with a thin skin or film of the tint required.

The work of making windows, and even the use of coloured glass, however, is far less than that of forming the immense variety of decorative and domestic articles in common request, so that it is necessary to speak of the great trade of glass-making in reference to bottles, wine-glasses, tazzas, chandeliers, and a thousand beautiful objects, where cutting gives brilliant lustre, and engraving makes them valuable as examples of fine art. About their first formation there is not much to say, however. The workman with his blow-pipe represents the manufacture of all the commoner kinds known as blown glass, and they are produced by the facility with which he can form the fused metal by the dexterous turn of his hand. Of course, all the blown glass is of a light description, while heavier articles are cast in moulds, and even where the blower gives the first form, moulds or dies are used to press the still plastic, half-melted material, into patterns or more exact shapes. Common bottles are formed with great rapidity by the blow-pipe, the “pouty,” and the “marver,” or metal table; and countless other articles of great elegance are twisted, manipulated, and formed into pretty

shapes. But beyond all this the arts of the glass-cutter and the engraver are requisite to give to such articles the lustre and beauty generally so much admired. This cutting, by which the clear, but comparatively dull glass is made brilliant, is effected by an iron wheel, which revolves under a continual supply of sand and water, which is allowed to drop off its surface; against this the first roughness of the glass is ground off, and the operation is completed on another wheel of Yorkshire grit-stone, which smooths and brightens the surface, which has then only to be polished by a third wheel of metal lubricated with oil and rotten-stone. Thus, what the casting begins the "cutting" completes, and every facet attains a brilliance which, if the glass be pure, is extremely beautiful in its power of reflecting light and colour.

Where engraving is required, another operation, dependent entirely on the skill of the workman, must be brought to bear upon the surface of the glass. This skill is so great that frequently with only a few indications—merely a slight mark here and there—the engraver can sit at his wheel and by its aid produce an elaborate and delicate pattern on goblet, bowl, or dish. For this engraving is effected by a copper wheel, the edge of which is of a thickness proportionate to the lines required. On this edge oil and emery-powder are the tools, and as it whirls, the workman, pressing the glass against it, so dexterously turns and twists the article, that the pattern is ground upon it with marvellous accuracy. The skilled engraver can earn good wages, but it is a nerve-exciting, and often a laborious employment. The design for the engraving is generally the work of an artist.

Actual painting upon glass (such as magic lantern slides) or upon china belongs to the class of purely artistic professions.

COOKERY.—XCIII.

FRENCH DISHES, ETC. (continued from p. 364).

Ailerons de Dindon aux Marrons (Turkeys' Wings with Chestnuts).—This dish is prepared in the same manner as *Ailerons de Dindon en Haricots*, chestnuts being substituted for turnips.

Ailerons de Dindon en Matelote.—Brown some flour and butter in a stewpan, partially cook the wings in it, and then pour over them equal quantities of stock broth and white wine. Add some parsley, chives, salt, pepper, and two cloves. Let them boil over a good fire, and when they are half done, put in with them some small onions fried in butter, and mushrooms. Immediately before sending to table, mix half a spoonful of capers with them, and serve them up with slices of crust of bread.

Ailerons de Dindon en Fricandeau (Wings of Turkey en Fricandeau).—Scald and pluck the wings, and cover them with slices of bacon, attached by skewers, blanch them in boiling water, and proceed as directed for *fricandeau de veau*. This dish may be sent to table with sorrel, or with purée of chestnuts or lentils.

Pigeon à la Broche (Roast Pigeon).—This bird is roasted surrounded by slices of bacon and vine-leaves.

Pigeons en Matelote (Pigeons Dressed in the Sailors' Manner).—Put some butter and flour into a stewpan, and simmer until they turn brown, and cook in the batter the pigeons cut in pieces, with a few thin slices of bacon. Pour over them some stock broth, and white wine, and add some chives, parsley, thyme, mushrooms, and onions fried in butter, salt, pepper, and spice, and boil them down over a good fire.

Pigeons aux Pois.—Brown a spoonful of flour with butter and sugar, put into it the pigeons, and some slices of bacon. When the birds are done, pour in some stock broth, season it with pepper, and add some parsley, chives, and thyme. Then put in the peas, and stew the whole into thick gravy.

Pigeons Frits (Pigeons Fried).—Pluck and singe some very young pigeons, and leave on their heads, wings, and feet. Cook them in a stewpan with butter, white wine, parsley, chives, thyme, two cloves, salt, pepper, and nutmeg. When done sufficiently, remove them, drain them, and let them get cold. Then cover them with *pâte à frire*, fry them brown, and serve them with parsley.

Pigeons aux Pointes d'Asperges (Pigeons with Asparagus).—This dish is prepared in the manner directed for *pigeons aux pois*. It should, however, be remembered not to add the asparagus heads until the pigeons are nearly cooked. The heads of asparagus also require to be blanched in boiling water before being used.

Pigeons à la Sainte Menchould.—Put into a stewpan some butter and flour, and after browning it, add parsley, chives, two onions sliced, carrots and parsnips cut in strips, a bay-leaf, salt, pepper, and nutmeg. After they have remained over the fire for a short time, pour over them some milk, and let it boil for a short time. Then put in the pigeons, and simmer them until cooked, when they require to be taken out, drained, and covered with bread-crumbs, and boil them. Then pour over them the gravy, and send to table.

Raie à la Sainte Menchould.—Remove the flesh from a skate, simmer it in some thick *béchamel*. Then put the pieces of fish on a dish, cover them with bread-crumbs and grated cheese, and brown them in a Dutch oven, or under a hot cover.

Raie en Marinade (Skate in Marinade).—Remove the skin, cut the fish in pieces the size of two fingers, and steep them for some hours in vinegar, with salt, pepper, parsley, and chives; then take them out, drain, cover them with flour, and fry them. They should be sent to table with fried parsley.

Turbot à la Sauce aux Câpres (Turbot with Caper Sauce).—Simmer the fish either in salt and water, or else in salt and water mixed with milk, or in thick stock. Boil with it some onions cut in slices, chives, thyme, bay-leaves, parsley, and pepper. But if it is desired that the turbot should be very white, simmer it by itself in thick stock broth for a quarter of an hour; take it out, drain it, and wet it with lemon-juice. Strain the stock broth, and again simmer the fish in it until cooked. This may be known by its flesh being soft when touched. When the turbot is cooked, send it to table with caper sauce. *Turbot à la Sainte Menchould* is prepared in the manner directed for *raie à la Sainte Menchould*.

Morue (Cod).—The fish should be put into cold soft water, for if hard water is employed, it tends to harden its flesh. The fish should then be simmered until nearly done, then the vessel removed from the fire, the lid put on, and allowed to remain for a quarter of an hour before the fish is removed.

Saumon au Bleu (Salmon Cooked in Wine with Vegetables).—Simmer the fish in wine, with carrots and onions sliced, four bay-leaves, a handful of parsley, some thyme, four cloves, salt and pepper, taking care that the fish is entirely covered with the liquor. When the fish is done, which may be known by the eyes projecting from the head, it should be taken out, and served on a dish covered with parsley. Sometimes the scales are scraped from the salmon, and it is then sent to table covered with *sauce au beurre*, with which some capers, minced anchovies, and cucumbers have been mixed.

Saumon à la Sauce Tomate (Salmon with Tomato Sauce).—Steep a piece of salmon in oil, mixed with parsley and chives cut small, salt, nutmeg, and pepper. Broil the fish over a clear fire, continually moistening them with the oil, and serve with *sauce tomate*.

Saumon à la Sauce Câprée (Salmon with Caper Sauce).—The fish is cooked in the manner directed above, and should be sent to table with *sauce au beurre*, mixed with capers.

Salmon Salt (Salted Salmon).—This is cooked by soaking it in water, to remove some of the salt, and then simmering it gently in water, taking care that it does not boil, which would render the flesh hard.

Raie (Skate).—This fish may be boiled in water, with vinegar and salt, and some sliced onions. It should be served with *beurre noir*, or caper sauce.

CHEAP SOUPS.

Vegetable Soup.—Take a quart of young peas, eight lettuces, the same number of cucumbers peeled and cut in slices, four onions, parsley, mint, pepper, salt, and three-quarters of a pound of butter, but do not add any water or other liquid to them. Simmer the vegetables in their own juice, over a gentle fire, for forty minutes, and then add three quarts of boiling water. Let them stew again for three hours, and thicken it with a little flour before sending the soup to table.

Carrot Soup.—Put any bones that may be at hand into some of the liquor in which meat has been boiled. Add also some onions and turnips, salt and pepper. Let them simmer for two hours, then strain the liquor into a clean saucepan containing a number of carrots cut in slices, and again boil it until the carrots are reduced to pulp. The broth should then be strained through a coarse sieve, and again boiled until the liquid becomes as thick as pea soup.

Mock Vegetable Soup.—Grate a pound of sliced potatoes into pulp, and put them in a saucepan with six quarts of water. Add also a quart of dried peas, three onions, six ounces of rice, and two pounds of beef cut in slices. Boil them together until the soup is reduced to five quarts, and strain it through a cullender. Now beat the peas into pulp, and add to the strained broth, with three heads of celery cut into slices. Simmer the soup again until the celery is tender, and season with salt and pepper, catchup, or soy.

Scotch Soup.—Cut some leg of beef in pieces, and put it in a saucepan with three quarts of water. Add some neck of mutton and half a pound of barley. Let them boil until the barley is soft, then add a fowl, with spinach and onions.

A Good Pea Soup.—This may be made by adding a quart of dried peas—which may be either whole or split, the latter being the best, but most expensive—to the liquor in which pork has been boiled. After it has boiled one hour, add some carrots or parsnips, a dozen carrots, the same number of onions, five or six sticks of celery, and a handful of parsley. Season the soup with pepper and salt, if required.

Mutton Broth for Sick Persons.—Remove the fat from a pound of neck of mutton, put the meat into two pints of water, and simmer it for about six hours. When the fluid is reduced to half, skim off all the fat very carefully, and strain the broth. This broth may be thickened if desired by the addition of some pearl barley.

MISCELLANEOUS RECEIPTS.

Sauce Indienne (Indian Sauce).—Add plenty of pepper and half a teaspoonful of powdered turmeric to a piece of butter the size of an egg, and put them in a stewpan over the fire. When the butter is melted, and well mixed with the other ingredients, add two ladlefuls of *velouté*, and two tablespoonfuls of stock broth. Simmer down the fluids, skim, and pour off into another pan. Then add, before it is sent to table, some more fresh butter, and mix it well in the sauce.

Macaroni.—Simmer a pound of macaroni in stock broth, or in water, thickened with butter and potato-starch, and seasoned with salt, pepper, and nutmeg. Care must be taken not to cook it too much, as it should be

taken out from the vessel as soon as it feels soft to the finger. Then drain it in a cullender, and put it into a stewpan with a quarter of a pound of butter, half a pound of grated cheese, together with some pepper and nutmeg. When sufficiently done add some cream, and send it to table as soon as the cheese has absorbed it. Macaroni may also be dressed with gravy from meat, or fowls if preferred.

To Use up Cold Meat.—Mince up any cold meat you may have at hand with parsley, pepper, and salt. Mix with it one-third of its weight of bread-crumbs, and either bake it or boil it in a basin. If preferred, it may be made into small rolls and fried in butter.

Pepper Pot.—Take a pound of any kind of meat, fish, fowl, and vegetables that may be at hand, and boil them in three quarts of water, with some salt, cayenne pepper, and a little pulse. Stew the whole together until the meat is tender.

Collared Beef, to be Eaten Cold.—Bone a flank of beef, and notch it at distances of half an inch, taking care not to cut it through the outside skin. Sprinkle a little water over the meat, and lay it in an earthenware dish. Throw over it a mixture of two ounces of saltpetre and a handful of common salt. Let it remain in salt for four or five days, and then sprinkle it over with a quantity of sweet herbs cut small. Now take some bacon cut in long slices the size of a finger, and lay them in the notches cut in the meat. Fill the notches also with the herbs and some minced anchovy. Season well with mace, pepper, salt, and nutmeg. Then roll it out as lightly as possible, and bind it round in a cloth with a string, and put it in a large pot with the end downwards. Fill the vessel with water, add the brine produced by the meat while being salted, and place it in an oven all night. Then take it out, bind it as tight as possible, and tie both ends. The following day take the meat out of the cloth, and preserve it for use in pickle. The pickle for the purpose is thus prepared:—Remove the fat from the liquor in which the beef is cooked, and boil it with a handful of bay-leaves, vinegar, strong ale, salt, and pepper. If this pickle is properly made, it will continue good for six months. Collared beef prepared in this manner will separate in small squares when cut, provided the meat has not been cooked too long.

To Make Broth from Calves' Feet.—Simmer a calf's foot in three pints of water until it is reduced to half. Strain it through a cloth, and pour it into a pan to get cold. Then remove the fat from its surface, and preserve it in a cool place. When required for use, take a large cupful of it and melt it in a saucepan, with half a glass of wine and some sugar and nutmeg. When the broth is warmed sufficiently, and gradually the yolk of an egg beaten up, and mix them together by frequent stirring.

A Good Way to Cook Ox-cheek.—Simmer the ox-cheek in about four gallons of water. Then remove the meat, and let the liquor become cold. The thick layer of fat which has collected on the broth should then be removed, and the meat put back in it, together with peas, rice, and herbs, pepper and salt. Boil until the broth is reduced to one-third of its quantity, and the meat becomes tender.

Onion Sauce.—Cut two onions in slices, put them in a pan with a sufficient quantity of veal gravy, and simmer them to the consistence of sauce. Strain the sauce through a sieve, and season it with salt and pepper.

Seasoning for Gravy.—Take an ounce and a half of white pepper, half an ounce of mace, twice that quantity of nutmegs, two drachms of cayenne, and a drachm each of ginger and cassia. The articles should be finely ground, and then mixed.

Gravy for Fowls.—Simmer the neck, gizzard, and liver in a pint of water, with some thyme, toasted bread, pepper and salt. When the gravy is boiled to half, strain it, and thicken with flour and butter.

HOUSEHOLD FIRE-ARMS.—II.

Cleaning Guns.—Simple as the operation of taking a gun apart for cleaning purposes appears to be, some degree of care and system should be observed in the process, or broken springs and damaged woodwork will probably be the result. Breech-loaders do not, as a rule, require separation or general opening, as it is called, in order to free them from dirt or moisture, as, from the barrels being open at each end, they can, when thrown into the loading position, be readily freed from the results of firing or accumulations of dust, &c., by drawing a woollen rag moistened with spirits of turpentine, by the aid of a string, several times through them. A split bullet serves to hold the loose end of the cord, and act as a weight to conduct it forward and back through the tube. As no nipples or nipple-caps are used, the locks of breech-loaders will very rarely require removing from their resting-places in the stock. Should it, however, be requisite to take the locks off, the same precautions will be needed as we are about to give touching muzzle-loaders, double and single.

In order to thoroughly clean every part of the muzzle-loading gun, we must first proceed to separate certain joints, parts, and points of union. To do this safely and expeditiously we first remove the ramrod from its hoops, draw each hammer to half-cock, and then lay the gun, upside down and pointing from before, backwards over our left shoulder. We now with the handle of our turn-screw deliver one or two light taps on the point of the bolt which passes through the fore end of the stock and secures the barrels to it. Having started the bolt and caused its head to project beyond the surface of the scutcheon plate, we pass the point of the turn-screw below its edge and force it steadily out until it is stopped by its check-pin. The barrels will now unhook themselves from the false breech, and can be removed and set aside. Keeping the stock in the same position, apply the point of the turn-screw to the cleft of the screw or *side nail*, as it is called, which holds the locks fast, turn it steadily out, taking great care that the point of the turn-screw does not slip from its hold and damage the stock. Care should also be taken that the point of the instrument is not wider than the head of the screw, or the lockplate will be disfigured to a certainty. Having removed the locks from their sockets, draw them to full-cock, and with a mainspring cramp, or, in the absence of that appliance, a small hand-vice, guarded with bits of sheet lead, screw the spring to the exact point at which it is drawn by the raised hammer, and no further; now, holding the hammer-head, or *dolphin*, with the thumb, press the sear with the finger, just as the trigger would. The claw end of the spring can now be detached from the bridge and lifted out. The screws which hold the sear and its spring may be then withdrawn. The sear will now be free for removal, together with the sear spring. Before the tumbler can be removed from the lock-plate the hammer must be taken off, by first turning out the binding screw, and then lifting it off its square attachment. As the screws are removed they should be temporarily replaced in the orifices to which they belong, in order to avoid confusion.

Each separate part can now be cleaned with watch-makers' oil, which can be either purchased, or made by putting a few shot into a small bottle of best olive oil, and at the end of a few days decanting off all the clear oil, leaving the sediment at the bottom of the bottle. An old tooth-brush and a bit of sharp-pointed stick will be useful to clean with, and chamois leather as a finisher.

To put the lock together again, first put the tumbler in place, and attach the hammer as at full cock; place on the curved and perforated piece of steel which covers the tumbler and holds the sear screws; put the sear-spring in place, screw it fast, and firmly press up the sear until

the screw orifices match, when that may be screwed fast. The hooked end of the main-spring may now be caught over the cross of the bridge, and its dowel pin inserted in the hole made for it in the lock-plate; when accurately fitted to its original position, the cramp or vice may be unscrewed, and the lock will be fit for use. A very little oil may be applied with the sharp stick to the principal points of friction before attaching the lock to the gun. The barrels of guns should never be cleaned with iron or steel rods, as they are liable to inflict serious injury on the lands of rifles or the bores of shot guns.

In the absence of a regular cleaning-rod and apparatus, a rounded and planed stick, composed of any tough wood, a little less than the bore, and about seven inches longer than the barrel, should be made use of. One end of the stick must be cut into rough notches over a length of four inches, in order to afford a firm hold for the tow or strips of rag used in cleaning. A pail or other wooden vessel is far preferable to one composed of earthenware or metal to wash out the barrels in, as there is less fear of breakage, and the lock ends of the barrels and edges of the breech are not bruised or injured. A little cold water should be first used, in order that the solid products of gunpowder explosion may be thoroughly dissolved and loosened. The second washing may be with hot water, and when this, after being forced through the barrel, comes away quite clean, boiling water from the spout of a kettle should be poured into each barrel until it is quite full, and then allowed to find its way, unaided by the rod, out through the nipples. As the barrels when free from water will be found too hot to hold, a thick dry towel or cloth may therefore be made use of to grasp them with, whilst they are thoroughly rubbed inside and out with dry cleaning material—the heat communicated by the boiling water, causes the metal to dry rapidly. Whilst still warm, a little spirits of turpentine should be applied to both the interiors and exteriors of the barrels.

Useful Gun for House Defence.—For house defence a short, strong, breech-loading double gun, No. 12 bore, loaded with BB shot, is an admirable weapon. It need not be loaded until required for use. It should be placed ready to hand with a few cartridges in a pouch or bag attached to it. A few seconds of time only are necessary for the completion of the loading process, and when the alarm is over the cartridges can be withdrawn in an instant, and replaced in the pouch until required again. Revolvers are also well adapted for house or personal defence, but a serious error has been committed in making them so small in the bore and insignificant that by the burglar they are regarded rather with derision than dread.

Alarm guns are, as their name implies, intended to warn their owners and those dwelling in the neighbourhood, of the proximity of evildoers, without inflicting injury on any person or thing. They are simply stout, dumpy, mortar-shaped miniature cannon, so attached to an iron support that it can be easily screwed, gimlet-like, into a tree, post, or wall, mouth or muzzle downwards. A flat spring is used instead of a hammer to strike the percussion-cap, which is placed on a nipple in the centre of the breech of the gun, over which a painted metal roof fits, so as to keep off rain. After the insertion of a heavy charge of powder and a liberal supply of wadding, tightly rammed, the spring is raised by a little tilting button, composed of brass. From this button a wire, or numerous wires, may be carried to any desired point and then fastened. A percussion-cap, well waxed to ward off moisture, is then finally placed on the nipple, when, should any pilferer or intruder inadvertently step on or disturb a wire, such an explosion follows as seldom fails to send the would-be thief off at the top of his speed, set all the dogs within half a mile of the place barking furiously, and cause the neighbourhood to be on the alert forthwith. Prevention is generally thought to be better than cure.

USEFUL TABLES.

At the conclusion of a work like the HOUSEHOLD GUIDE—a book which is essentially a domestic encyclopædia—it has been thought advisable to add a collection of ready-reckoning tables for the use of the household. These tables include "Avoirdupois Weight," ranging from a farthing to six shillings and eightpence a pound, and from £1 to £112 a ton; "Dry Measure," from a farthing to sixpence a pint; "Liquid Measure," from a penny to eight shillings a quart; "Cloth and Linen Measure," from a third of a penny to fifteen shillings a yard; "Wages" and Income Table," from £10 to £300 per annum; and, finally, a table of "House Taxes," from a penny to two shillings in the £1 on an assessment of from £10 to £55 per annum.

An explanation of the plan on which the tables are designed will be found below.

AVOIRDUPOIS WEIGHT.

TABLE I.

This Table has been designed to show at a glance the cost of any small quantity at any given price for any given weight. In using the table, find the price in the column headed by the weight whose cost is known, and parallel with it will be found on either side the price of either larger or smaller quantities. For instance, if the price of $\frac{1}{2}$ lb. be 1s. 6d., look under the column headed $\frac{1}{2}$ lb. for 1s. 6d., and then to the left will be found the price of any smaller quantity, and on the right the price of a larger one. The Tables following this will be designed on the same plan, and will have to be used in the same manner.

[illegible]

AVOIR, DU POIS WEIGHT.—TABLE II.

[illegible]

DRY MEASURE.

[illegible]

LIQUID MEASURE.—TABLE I.

[illegible]

LIQUID MEASURE.—TABLE II.

1 gill.	1 gill. (1 pint.)	1½ gill.	1 pint.	1 pint.	1 pint.	1 pint.	1 quart (2 pts.)	3 pints	2 qrts (1 gal.)	3 quarts.	1 gallon. (4 quarts.)	9 gal. (Farkin Beer.)	16 gal. (Anker Wine.)	18 gal. (Kil. Beer. Rumet Wine.)	36 gal. (Barrel Wine.)	42 gal. (Tierce Wine.)	54 gal. (Hyshead 11 Barrel Beer.)	63 gal. (Hyshead of Wine.)	
s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
0	1	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	1
0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	2
0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	3
0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	2	0	4
0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	3	0	5
0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	4	0	6
0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	5	0	7
0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	6	0	8
0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	7	0	9
0	10	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	8	0	10
0	11	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	9	0	11
0	12	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	10	0	12
0	13	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	11	0	13
0	14	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	12	0	14
0	15	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	13	0	15
0	16	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	14	0	16
0	17	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	15	0	17
0	18	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	16	0	18
0	19	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	17	0	19
0	20	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	18	0	20
0	21	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	19	0	21
0	22	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	20	0	22
0	23	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	21	0	23
0	24	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	22	0	24
0	25	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	23	0	25
0	26	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	24	0	26
0	27	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	25	0	27
0	28	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	26	0	28
0	29	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	27	0	29
0	30	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	28	0	30
0	31	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	29	0	31
0	32	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	30	0	32
0	33	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	31	0	33
0	34	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	32	0	34
0	35	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	33	0	35
0	36	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	34	0	36
0	37	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	35	0	37
0	38	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	36	0	38
0	39	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	37	0	39
0	40	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	38	0	40
0	41	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	39	0	41
0	42	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	40	0	42
0	43	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	41	0	43
0	44	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	42	0	44
0	45	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	43	0	45
0	46	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	44	0	46
0	47	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	45	0	47
0	48	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	46	0	48
0	49	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	47	0	49
0	50	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	48	0	50
0	51	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	49	0	51
0	52	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	50	0	52
0	53	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	51	0	53
0	54	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	52	0	54
0	55	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	53	0	55
0	56	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	54	0	56
0	57	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	55	0	57
0	58	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	56	0	58
0	59	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	57	0	59
0	60	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	58	0	60
0	61	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	59	0	61
0	62	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	60	0	62
0	63	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	61	0	63
0	64	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	62	0	64
0	65	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	63	0	65
0	66	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	64	0	66
0	67	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	65	0	67
0	68	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	66	0	68
0	69	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	67	0	69
0	70	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	68	0	70
0	71	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	69	0	71
0	72	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	70	0	72
0	73	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	71	0	73
0	74	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	72	0	74
0	75	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	73	0	75
0	76	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	74	0	76
0	77	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	75	0	77
0	78	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	76	0	78
0	79	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	77	0	79
0	80	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	78	0	80
0	81	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	79	0	81
0	82	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	80	0	82
0	83	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	81	0	83
0	84	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	82	0	84
0	85	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	83	0	85
0	86	0	6	0	7	0	8	0	9	0	1	0	1	0	1	0	84	0	86
0	87	0	7	0	8	0	9	0	1	0	1	0	1	0	1	0	85	0	87
0	88	0	8	0	9	0	1	0	1	0	1	0	1	0	1	0	86	0	88
0	89	0	9	0	1	0	1	0	1	0	1	0	1	0	1	0	87	0	89
0	90	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	88	0	90
0	91	0	2	0	3	0	4	0	5	0	6	0	7	0	8	0	89	0	91
0	92	0	3	0	4	0	5	0	6	0	7	0	8	0	9	0	90	0	92
0	93	0	4	0	5	0	6	0	7	0	8	0	9	0	1	0	91	0	93
0	94	0	5	0	6	0	7	0	8	0	9	0	1	0	1	0	92	0	94
0	95	0	6	0	7	0	8	0	9	0	1	0	1	0	1				

CLOTH AND LINEN MEASURE.—TABLE I.

(From three yards per 1d. to 1s. per yard.)

[illegible]

CLOTH AND LINEN MEASURE.—TABLE II.

(From 1s. 6d. to 2s. per yard.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000
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CLOTH AND LINEN MEASURE.—TABLE III.

(From 25.04d. to 75. per yard.)

1/2	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6	7	8	9	10	11	12	13	14
yard.	yard.	yard.	yard.	yard.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.	yards.
0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19
0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39
0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59
0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79
0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99
1.00	1.01	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19
1.20	1.21	1.22	1.23	1.24	1.25	1.26	1.27	1.28	1.29	1.30	1.31	1.32	1.33	1.34	1.35	1.36	1.37	1.38	1.39
1.40	1.41	1.42	1.43	1.44	1.45	1.46	1.47	1.48	1.49	1.50	1.51	1.52	1.53	1.54	1.55	1.56	1.57	1.58	1.59
1.60	1.61	1.62	1.63	1.64	1.65	1.66	1.67	1.68	1.69	1.70	1.71	1.72	1.73	1.74	1.75	1.76	1.77	1.78	1.79
1.80	1.81	1.82	1.83	1.84	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.92	1.93	1.94	1.95	1.96	1.97	1.98	1.99
2.00	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09	2.10	2.11	2.12	2.13	2.14	2.15	2.16	2.17	2.18	2.19
2.20	2.21	2.22	2.23	2.24	2.25	2.26	2.27	2.28	2.29	2.30	2.31	2.32	2.33	2.34	2.35	2.36	2.37	2.38	2.39
2.40	2.41	2.42	2.43	2.44	2.45	2.46	2.47	2.48	2.49	2.50	2.51	2.52	2.53	2.54	2.55	2.56	2.57	2.58	2.59
2.60	2.61	2.62	2.63	2.64	2.65	2.66	2.67	2.68	2.69	2.70	2.71	2.72	2.73	2.74	2.75	2.76	2.77	2.78	2.79
2.80	2.81	2.82	2.83	2.84	2.85	2.86	2.87	2.88	2.89	2.90	2.91	2.92	2.93	2.94	2.95	2.96	2.97	2.98	2.99
3.00	3.01	3.02	3.03	3.04	3.05	3.06	3.07	3.08	3.09	3.10	3.11	3.12	3.13	3.14	3.15	3.16	3.17	3.18	3.19
3.20	3.21	3.22	3.23	3.24	3.25	3.26	3.27	3.28	3.29	3.30	3.31	3.32	3.33	3.34	3.35	3.36	3.37	3.38	3.39
3.40	3.41	3.42	3.43	3.44	3.45	3.46	3.47	3.48	3.49	3.50	3.51	3.52	3.53	3.54	3.55	3.56	3.57	3.58	3.59
3.60	3.61	3.62	3.63	3.64	3.65	3.66	3.67	3.68	3.69	3.70	3.71	3.72	3.73	3.74	3.75	3.76	3.77	3.78	3.79
3.80	3.81	3.82	3.83	3.84	3.85	3.86	3.87	3.88	3.89	3.90	3.91	3.92	3.93	3.94	3.95	3.96	3.97	3.98	3.99
4.00	4.01	4.02	4.03	4.04	4.05	4.06	4.07	4.08	4.09	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19
4.20	4.21	4.22	4.23	4.24	4.25	4.26	4.27	4.28	4.29	4.30	4.31	4.32	4.33	4.34	4.35	4.36	4.37	4.38	4.39
4.40	4.41	4.42	4.43	4.44	4.45	4.46	4.47	4.48	4.49	4.50	4.51	4.52	4.53	4.54	4.55	4.56	4.57	4.58	4.59
4.60	4.61	4.62	4.63	4.64	4.65	4.66	4.67	4.68	4.69	4.70	4.71	4.72	4.73	4.74	4.75	4.76	4.77	4.78	4.79
4.80	4.81	4.82	4.83	4.84	4.85	4.86	4.87	4.88	4.89	4.90	4.91	4.92	4.93	4.94	4.95	4.96	4.97	4.98	4.99
5.00	5.01	5.02	5.03	5.04	5.05	5.06	5.07	5.08	5.09	5.10	5.11	5.12	5.13	5.14	5.15	5.16	5.17	5.18	5.19
5.20	5.21	5.22	5.23	5.24	5.25	5.26	5.27	5.28	5.29	5.30	5.31	5.32	5.33	5.34	5.35	5.36	5.37	5.38	5.39
5.40	5.41	5.42	5.43	5.44	5.45	5.46	5.47	5.48	5.49	5.50	5.51	5.52	5.53	5.54	5.55	5.56	5.57	5.58	5.59
5.60	5.61	5.62	5.63	5.64	5.65	5.66	5.67	5.68	5.69	5.70	5.71	5.72	5.73	5.74	5.75	5.76	5.77	5.78	5.79
5.80	5.81	5.82	5.83	5.84	5.85	5.86	5.87	5.88	5.89	5.90	5.91	5.92	5.93	5.94	5.95	5.96	5.97	5.98	5.99
6.00	6.01	6.02	6.03	6.04	6.05	6.06	6.07	6.08	6.09	6.10	6.11	6.12	6.13	6.14	6.15	6.16	6.17	6.18	6.19
6.20	6.21	6.22	6.23	6.24	6.25	6.26	6.27	6.28	6.29	6.30	6.31	6.32	6.33	6.34	6.35	6.36	6.37	6.38	6.39
6.40	6.41	6.42	6.43	6.44	6.45	6.46	6.47	6.48	6.49	6.50	6.51	6.52	6.53	6.54	6.55	6.56	6.57	6.58	6.59
6.60	6.61	6.62	6.63	6.64	6.65	6.66	6.67	6.68	6.69	6.70	6.71	6.72	6.73	6.74	6.75	6.76	6.77	6.78	6.79
6.80	6.81	6.82	6.83	6.84	6.85	6.86	6.87	6.88	6.89	6.90	6.91	6.92	6.93	6.94	6.95	6.96	6.97	6.98	6.99
7.00	7.01	7.02	7.03	7.04	7.05	7.06	7.07	7.08	7.09	7.10	7.11	7.12	7.13	7.14	7.15	7.16	7.17	7.18	7.19
7.20	7.21	7.22	7.23	7.24	7.25	7.26	7.27	7.28	7.29	7.30	7.31	7.32	7.33	7.34	7.35	7.36	7.37	7.38	7.39
7.40	7.41	7.42	7.43	7.44	7.45	7.46	7.47	7.48	7.49	7.50	7.51	7.52	7.53	7.54	7.55	7.56	7.57	7.58	7.59
7.60	7.61	7.62	7.63	7.64	7.65	7.66	7.67	7.68	7.69	7.70	7.71	7.72	7.73	7.74	7.75	7.76	7.77	7.78	7.79
7.80	7.81	7.82	7.83	7.84	7.85	7.86	7.87	7.88	7.89	7.90	7.91	7.92	7.93	7.94	7.95	7.96	7.97	7.98	7.99
8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	8.08	8.09	8.10	8.11	8.12	8.13	8.14	8.15	8.16	8.17	8.18	8.19
8.20	8.21	8.22	8.23	8.24	8.25	8.26	8.27	8.28	8.29	8.30	8.31	8.32	8.33	8.34	8.35	8.36	8.37	8.38	8.39
8.40	8.41	8.42	8.43	8.44	8.45	8.46	8.47	8.48	8.49	8.50	8.51	8.52	8.53	8.54	8.55	8.56	8.57	8.58	8.59
8.60	8.61	8.62	8.63	8.64	8.65	8.66	8.67	8.68	8.69	8.70	8.71	8.72	8.73	8.74	8.75	8.76	8.77	8.78	8.79
8.80	8.81	8.82	8.83	8.84	8.85	8.86	8.87	8.88	8.89	8.90	8.91	8.92	8.93	8.94	8.95	8.96	8.97	8.98	8.99
9.00	9.01	9.02	9.03	9.04	9.05	9.06	9.07	9.08	9.09	9.10	9.11	9.12	9.13	9.14	9.15	9.16	9.17	9.18	9.19
9.20	9.21	9.22	9.23	9.24	9.25	9.26	9.27	9.28	9.29	9.30	9.31	9.32	9.33	9.34	9.35	9.36	9.37	9.38	9.39
9.40	9.41	9.42	9.43	9.44	9.45	9.46	9.47	9.48	9.49	9.50	9.51	9.52	9.53	9.54	9.55	9.56	9.57	9.58	9.59
9.60	9.61	9.62	9.63	9.64	9.65	9.66	9.67	9.68	9.69	9.70	9.71	9.72	9.73	9.74	9.75	9.76	9.77	9.78	9.79
9.80	9.81	9.82	9.83	9.84	9.85	9.86	9.87	9.88	9.89	9.90	9.91	9.92	9.93	9.94	9.95	9.96	9.97	9.98	9.99
10.00	10.01	10.02	10.03	10.04	10.05	10.06	10.07	10.08	10.09	10.10	10.11	10.12	10.13	10.14	10.15	10.16	10.17	10.18	10.19
10.20	10.21	10.22	10.23	10.24	10.25	10.26	10.27	10.28	10.29	10.30	10.31	10.32	10.33	10.34	10.35	10.36	10.37	10.38	10.39
10.40	10.41	10.42	10.43	10.44	10.45	10.46	10.47	10.48	10.49	10.50	10.51	10.52	10.53	10.54	10.55	10.56	10.57	10.58	10.59
10.60	10.61	10.62	10.63	10.64	10.65	10.66	10.67	10.68	10.69	10.70	10.71	10.72	10.73	10.74	10.75	10.76	10.77	10.78	10.79
10.80	10.81	10.82	10.83	10.84	10.85	10.86	10.87	10.88	10.89	10.90	10.91	10.92	10.93	10.94	10.95	10.96	10.97	10.98	10.99
11.00	11.01	11.02	11.03	11.04	11.05	11.06	11.07	11.08	11.09	11.10	11.11	11.12	11.13	11.14	11.15	11.16	11.17	11.18	11.19
11.20	11.21	11.22	11.23	11.24	11.25	11.26	11.27	11.28	11.29	11.30	11.31	11.32	11.33	11.34	11.35	11.36	11.37	11.38	11.39
11.40	11.41	11.42	11.43	11.44	11.45	11.46	11.47	11.48	11.49	11.50	11.51	11.52	11.53	11.54	11.55	11.56	11.57	11.58	11.59
11.60	11.61	11.62	11.63	11.64	11.65	11.66	11.67	11.68	11.69	11.70	11.71	11.72	11.73	11.74	11.75	11.76	11.77	11.78	11.79
11.80	11.81	11.82	11.83	11.84	11.85	11.86	11.87	11.88	11.89	11.90	11.91	11.92	11.93	11.94	11.95	11.96	11.97	11.98	11.99
12.00	12.01	12.02	12.03	12.04	12.05	12.06	12.07	12.08	12.09	12.10	12.11	12.12	12.13	12.14	12.15	12.16	12.17	12.18	12.19
12.20	12.21	12.22	12.23	12.24	12.25	12.26	12.27	12.28	12.29	12.30	12.31	12.32	12.33	12.34	12.35	12.36	12.37	12.38	12.39
12.40	12.41	12.42	12.43	12.44	12.45	12.46	12.47	12.48	12.49	12.50	12.51	12.52	12.53						

WAGES AND INCOME TABLE.

[illegible]

HOUSE TAXES.

On an Assessment of from £10 to £55 per Annum.

[illegible]

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